Professional Automation Control System

EXT-PACS

User Manual

www.gefen.com

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INTRODUCTION

Congratulations on your purchase of the Professional Automation Control System. Your complete satisfaction is very important to us.

Gefen

Gefen delivers innovative, progressive computer and electronics add-on solutions that harness integration, extension, distribution and conversion technologies. Gefen's reliable, plug-and-play products supplement cross-platform computer systems, professional audio/video environments and HDTV systems of all sizes with hard-working solutions that are easy to implement and simple to operate.

The Gefen Professional Automation Control System

The Professional Automation Control System (PACS) allows IP control of Gefen devices using RS-232 or IR, and other A/V devices (displays, Blu-ray players, cable/satellite boxes, lighting systems, motorized screens, etc.) from any Web-enabled smartphone, WiFi tablet, laptop, or automation system. The Web user interface allows IR, RS-232, and 12V trigger commands to be sent by the PACS to the connected devices to execute the desired functions.

The configurable IR, RS-232, and 12V DC trigger signals allow the PACS to be compatible with most A/V devices. The PACS can learn, store, and manage IR commands of different manufacturers' remotes.

The 12V DC triggers are highly configurable to work with the different requirements of various devices.

Use with the new Gefen A/V Automation System Processor to create a complete control system.

How It Works

Connect the serial-controlled devices to the PACS RS-232 ports. Plug the IR emitters into the PACS and place the LEDs close to the IR sensors of the A/V devices to be controlled. Connect trigger leads of various devices to the trigger outputs on the back panel. Connect the locking power supply to the PACS. Connect an Ethernet cable between the PACS and the local network.

Access the Web interface by typing in the correct IP address on your Web browser (default: 192.168.1.72), or by using Telnet. Configure the control interfaces (IR, RS-232, 12V DC triggers) via the Telnet/Web browser. Configure the Automation System to send commands to the PACS via IP.

READ THESE NOTES BEFORE INSTALLING OR OPERATING THE PROFESSIONAL AUTOMATION CONTROL SYSTEM

- The PACS is shipped with a static IP address of `192.168.1.72`. This address may need to be changed before the PACS will work on your Local Area Network. See page 10 for instructions on setting the PACS to a new IP address.
- If your network will contain multiple PACS units, each one must have a unique IP address before it is connected to the network. Install one PACS at a time, and change its IP address before connecting another PACS to the network.
- As the PACS is programmed, you can download the configuration and IR files to your computer or an external storage device. We recommend that you back up files frequently during programming, and save IR files for each device as it is learned. These files can be transferred to another PACS for future projects.
- RS-232 commands are not stored in the PACS. Only the configuration data is stored. The PACS acts as a bridge between your controller that is sending the RS-232 commands over your network, and the actual RS-232 port on the device that is being controlled.
- PACS allows control to be distributed throughout your system. Multiple PACS devices may be installed close to the devices being controlled, rather than near the system controller, to minimize cabling and improve reliability.

RS-232 Port Wiring Diagram

Only Pins 2 (RX), 3 (TX), and 5 (Ground) are used on the RS-232 serial interface

FEATURES

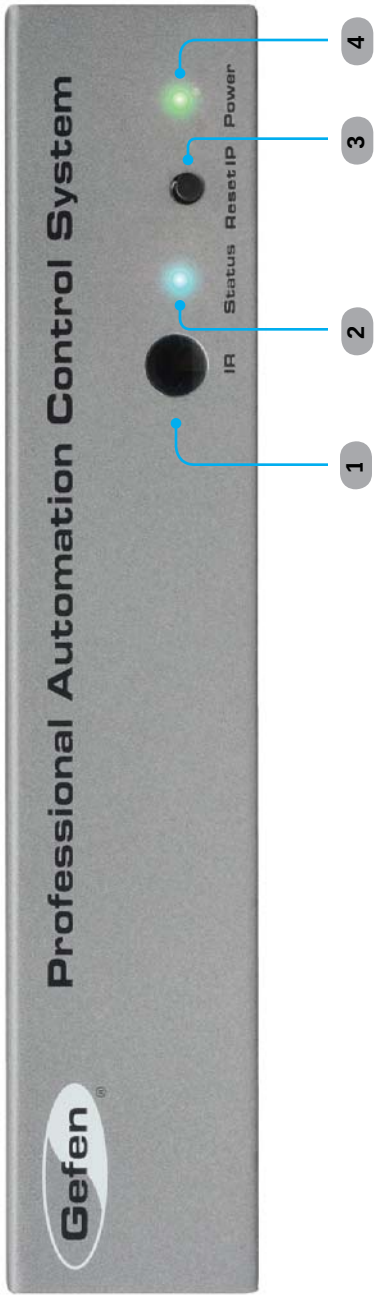
Features

- Control AV devices using IR, RS-232 control, and 12V triggers over a Web based IP control system.
- Configurable Ethernet input supports Telnet, Web browsers, and TCP/IP.
- Web Control: User interface designed to be viewed and controlled by home automation devices, computers, and mobile devices (i.e. cell phones with Internet browsers).
- 10 Trigger outputs (+12V, floating, open drain, or ground-referenced).
- Learns IR commands from manufacturer remotes, through front-panel IR receiver. Learned IR files may be saved on or retrieved from the user's PC in XML format.
- Store and manage IR commands from manufacturer remotes and access them via the Web control interface or TCP/IP Telnet.
- Eight discrete IR Emitter outputs for multiple device control.
- Manage RS-232 communications via Web control interface for up to three RS-232 devices. Supports baud rates up to 115200.
- Firmware can be upgraded via Web interface.
- Rack-mountable using the 1U Rack Tray (Gefen part no. EXT-RACK-1U).

Package Includes

(1) Professional Automation Control System
(4) Single IR emitters
(1) 6 ft. DB-9 cable (M - F)
(1) 12V / 3A DC Locking Power Supply
(1) Quick-Start Guide

Front Panel


Professional Automation Control System
Gefen
IR
Status
Reset IP
Power
1
2
3
4

FRONT PANEL DESCRIPTIONS

1 IR

The IR receiver is provided for the PACS to learn new IR commands. Use the Web Interface or Telnet for this procedure. See pages 17 - 23 for more information.

2 Status

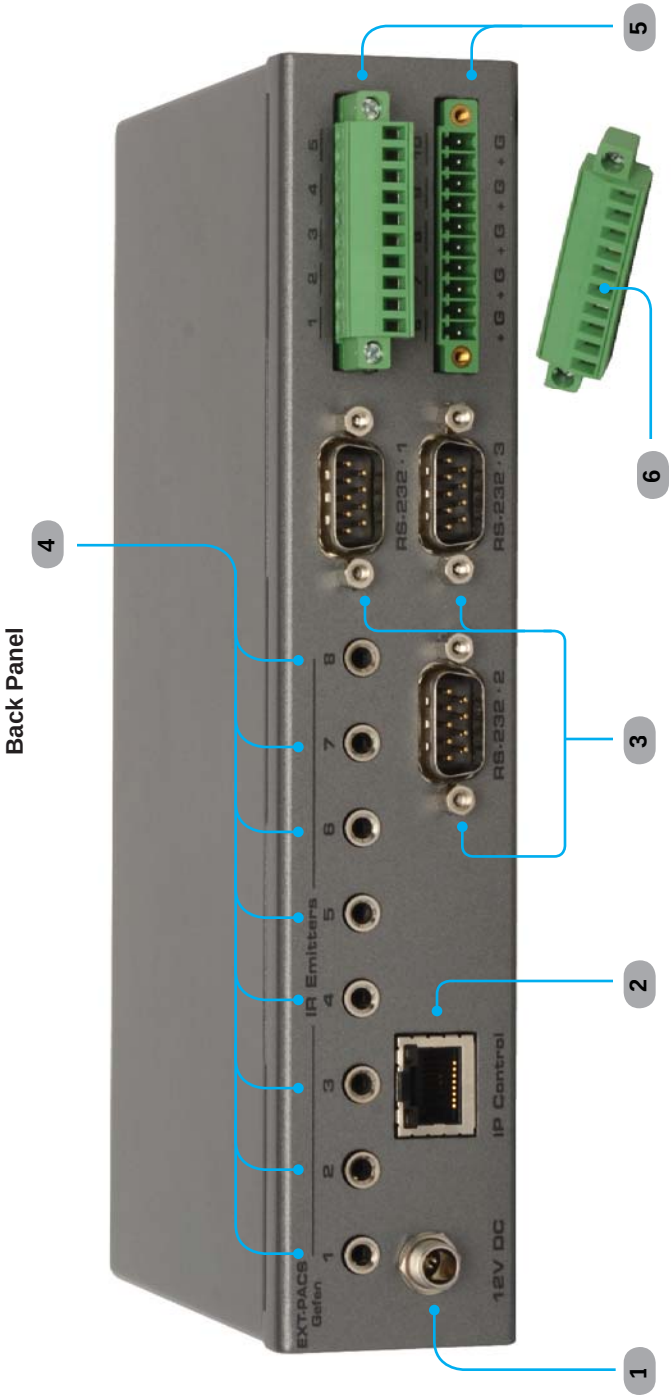
This LED indicator is normally OFF. It glows bright blue when the PACS is ready to receive a new IR command via the IR receiver.

3 Reset IP

This button is used to reset the IP address of the PACS. Hold this button down for about 10 seconds, until power light turns red, to reset the unit's IP address to **192.168.1.72**. This should only be done if the PACS is moved to a new network or cannot be located on the network.

4 Power

This LED will indicate the current power state. The LED is green when the unit is powered ON. The LED also flashes red during the Reset IP procedure.


Back Panel
1
2
3
4
5
6
12V DC
IP Control
IR Emitters
RS-232 : 1
RS-232 : 2
RS-232 : 3
EXT-PACS
Gefen

1 12V DC

Connect the included 12V DC locking power supply to this receptacle.

2 IP Control

Connect the PACS to a network in order to use IP control.

3 RS-232 Serial Ports (DB-9, male connectors)

These ports are used to control other devices via bi-directional RS-232 serial control, using TCP or UDP bridging. Port 3 may also be used with a Terminal Emulation program for programming and controlling the PACS (See Appendix for details).

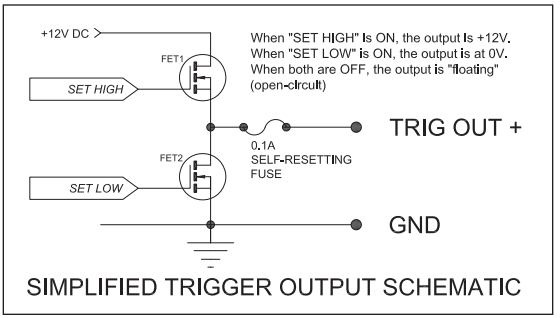
> **NOTE:** Only pins 2 (Receive), 3 (Transmit), and 5 (Ground) are used for communication. A null-modem adapter should *not* be used with this product when connecting to controlled devices (see page 80 for connecting to a computer via RS-232).

4 IR Emitters

Connect up to eight (8) single or dual 12V IR emitters (Gefen part no. EXT-IREMIT or other Xantech-compatible emitters) to these ports to control A/V or other devices using one-way IR control. These outputs are capable of transmitting IR signals with 30 - 60 kHz carrier frequencies.

5 Phoenix (Euroblock) Trigger Connectors

Connect up to ten (10) 12 Volt-controlled device inputs to these solid-state trigger outputs to control screens, drapes, lights, or other devices. Maximum source current is 100 mA per output. Use a 12V DC relay with less than 100 mA current draw to control other devices. Connect trigger wires to removable terminal block plugs.



SIMPLIFIED TRIGGER OUTPUT SCHEMATIC

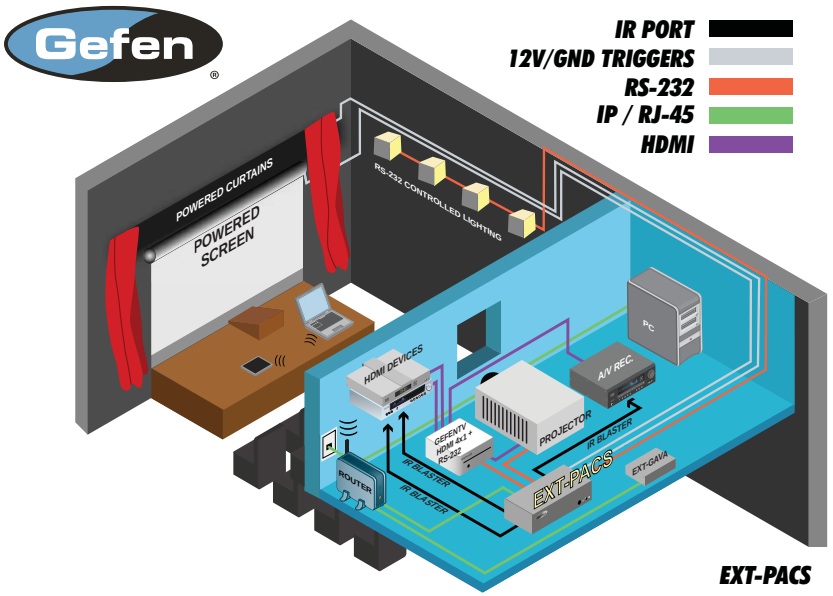
Each trigger has a solid-state (FET) output that can be configured as either push-pull (+12V or 0 V reference to the “G”-terminal) or open collector (either open circuit or connected to the “G”-terminal). Each output can source up to 100 mA at 12V DC.

6 Phoenix Terminal Block Plugs

How to Connect the PACS

1. Connect up to three (3) RS-232 (M-F) cables between the PACS and each of the RS-232 devices.
2. Connect up to eight (8) single or dual IR Emitters to the PACS. Make sure that each LED emitter is close to the IR sensor of the A/V devices to be controlled.
3. Connect the trigger leads of each of the various devices to the trigger outputs on the back panel of the PACS.
4. Connect an Ethernet cable between the PACS and the network. See the next page for details on configuring the network.
5. Connect the included 12V DC power supply to the power receptacle on the PACS. Connect the AC power cord to an available electrical outlet.

Wiring Diagram for the PACS



Setting the IP Address

The PACS is designed to control devices over a network using a built-in Web server or via Telnet. Before using Telnet control or the built-in Web Server, the network settings for the PACS must be configured via IP.

Before connecting the PACS to a network, locate the label on the bottom of the PACS. The MAC address and the default IP address will be listed on the label. The default IP address will be used to connect the PACS to the network.

IMPORTANT: Because all PACS units have the same default IP address, only one PACS may be connected to a network at a time, until its IP address is changed. If more than one device with the same IP address is connected to a network, computers will be unable to locate any of the devices.

MAC
Primary MAC address of the PACS. This address is different for each unit and cannot be changed.

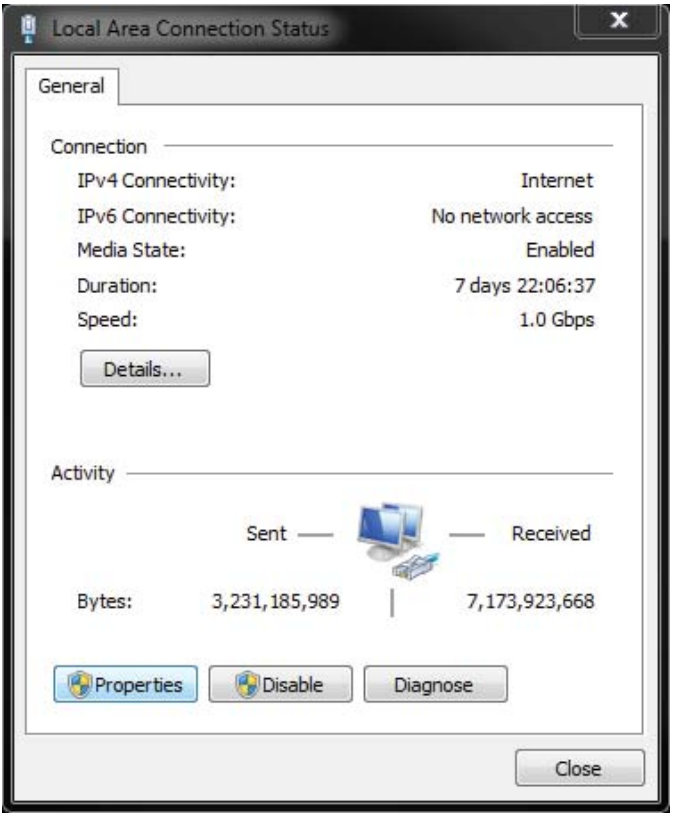
IP
The default IP address of the PACS.

If you computer has an IP address of `192.168.1.(x)`, and `192.168.1.72` is an available address, you can access the PACS by entering `192.168.1.72` in your Web browser.

Otherwise use the following procedure to change the PACS IP address to match your network:

1. Access the Network Setting control panel in Windows and locate your LAN connection. Under Windows 7®, this can be done by clicking *Start* > *Control Panel* > *Network Sharing Center* > *Change Adapter Settings*.

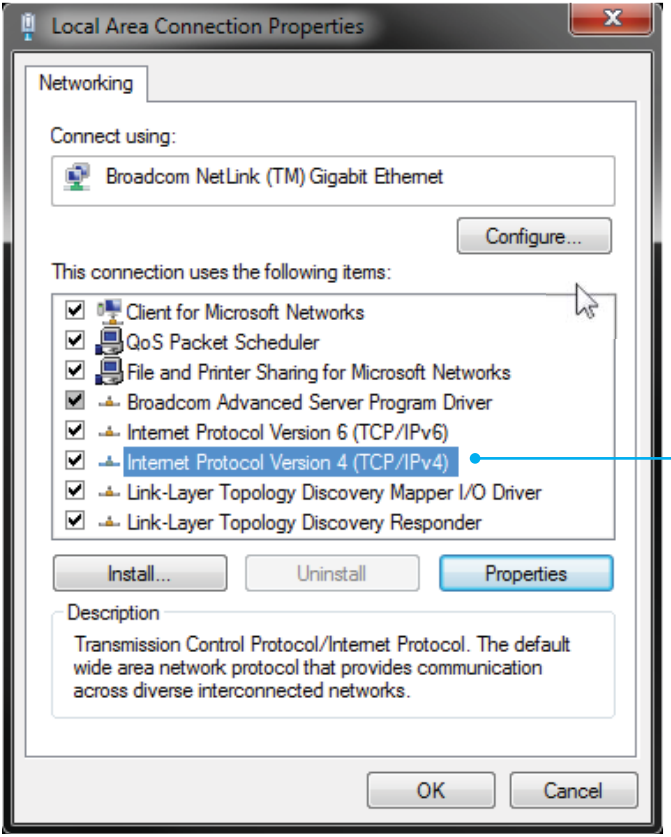
2. Click on the Local Area Connection icon to display the Local Area Connection Status dialog:



3. Click on the Properties button to display the Local Area Connection Properties dialog.

4. Click on Internet Protocol Version 4 (TCP/IPv4).

Internet Protocol Version 4 (TCP/IPv4)
Click to highlight this Network protocol.



5. Click the Properties button to display the Internet Protocol Version 4 (TCP/IPv4) Properties dialog.

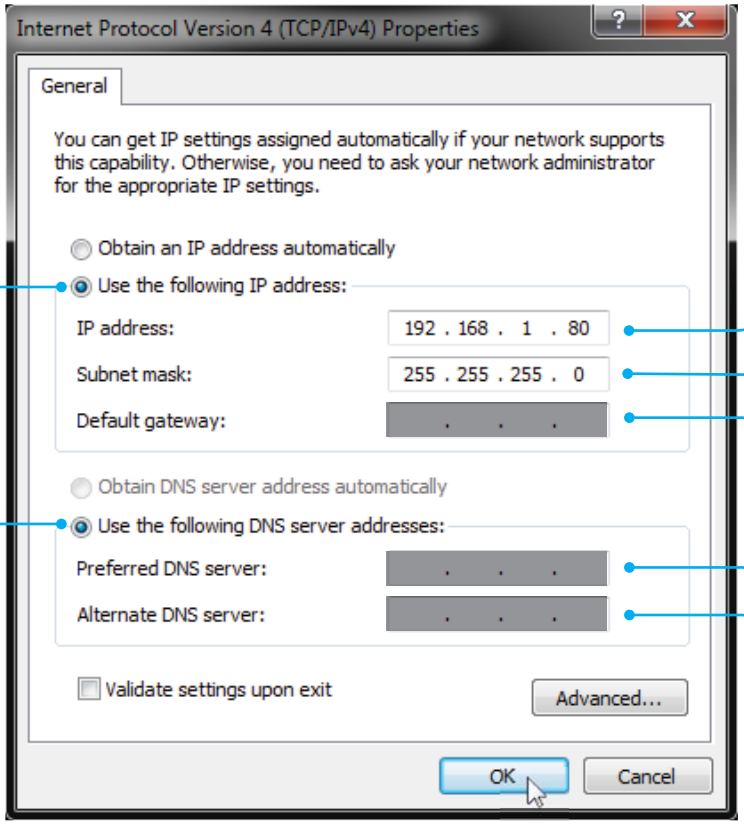
STOP: Write down the current IP settings before making changes, since you will need to restore the old settings later. If the Properties are set to "Obtain an IP address automatically" and "Obtain DNS server address automatically", you do not need the actual address settings.

6. Change the IP settings to the following:

Subnet mask
255.255.255.0

Use the following IP address
Click this radio button.

IP address
192.168.1.80*


Internet Protocol Version 4 (TCP/IPv4) Properties
General
You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.
Obtain an IP address automatically
Use the following IP address:
IP address:
192 . 168 . 1 . 80
Subnet mask:
255 . 255 . 255 . 0
Default gateway:
Obtain DNS server address automatically
Use the following DNS server addresses:
Preferred DNS server:
Alternate DNS server:
Validate settings upon exit
Advanced...
OK
Cancel

Use the following DNS server addresses
Click this radio button.

Clear these boxes.

*If the IP address `192.168.1.80` is already in use on your network, choose another unused address that is **not** `192.168.1.72` or your router's IP address

7. Click the OK button, then close all Control Panel windows.

8. Refresh your Web browser and go to `http://192.168.1.72` to open the PACS Web Server.

9. Go to the Configuration Menu (see page 35) and change the PACS IP address to an appropriate address for your network.

10. Click ”Save Changes”, “Reboot”, and “OK” to save the new IP address.

11. Reopen your computer’s network settings and restore the original settings (or go back to “Obtain an IP address automatically” and “Obtain DNS server address automatically”, if those were the original settings).

12. Then refresh your Web browser and go to the new PACS IP address to reopen the PACS Web Server.

Repeat this procedure to add additional PACS units to your network, assigning each unit a different IP address.

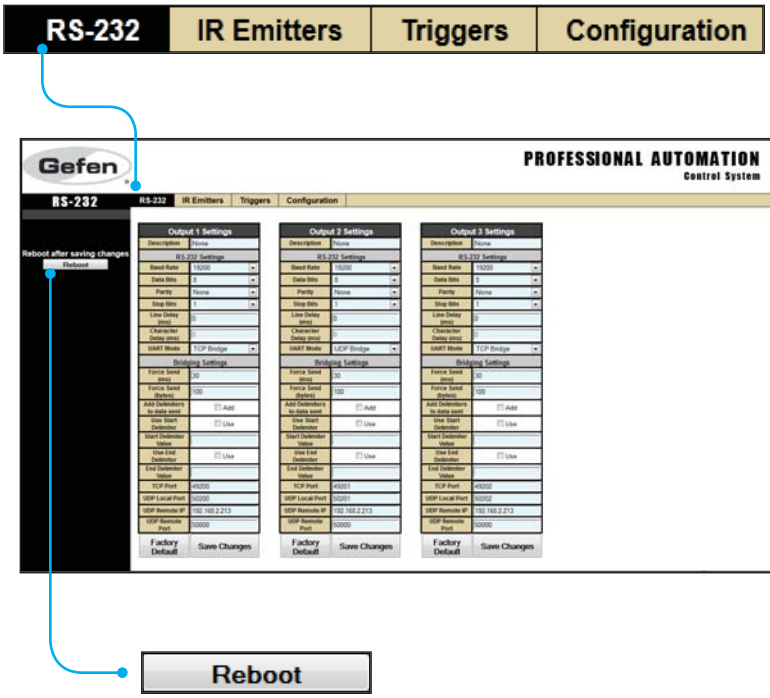
The Built-in Web Server

The PACS includes a built-in Web server which provides an intuitive Web interface. If TCP/IP is not configured on the PACS, then see page 9 for details on configuring the PACS. If the PACS is already configured for use on a network, then open a Web browser and type in the IP address of the PACS.

The built-in Web server provides control over RS-232, IR emitters, triggers, and general configuration. Each of these pages will be covered in the following sections.

Initially, when the Web page is launched, the RS-232 Menu is displayed. The top portion of the screen has tabs to select RS-232 settings, IR settings, trigger settings, and general configuration. Click on the desired tab to bring up the settings page for those functions.

Main Menu
Click on any of the four menu selections to access the desired page.

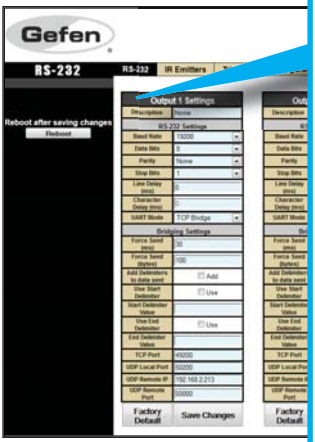


Reboot
The PACS must be rebooted after making all changes.

RS-232 Menu

The PACS has three (3) RS-232 ports. The RS-232 Menu allows you to change the RS-232 port settings on the PACS.

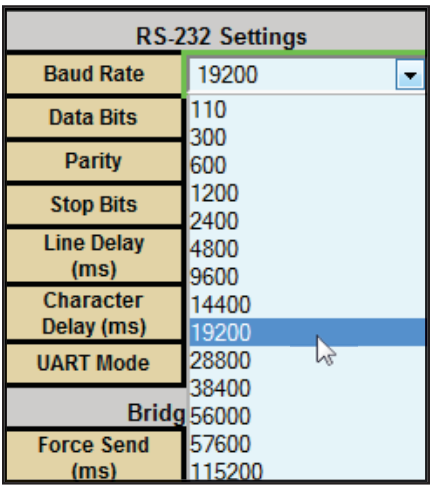
Description
Provide a name to the device connected to this port (e.g. “SonyTV”, “Samsung”, etc.)



RS-232 Settings

Some RS-232 settings use a drop-down menu for selecting different options.

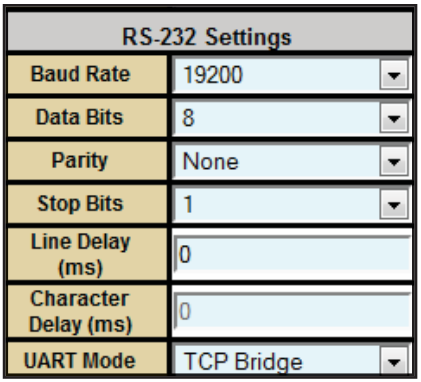
For example, to select the Baud Rate, click the arrow icon then click on the required port speed:



Arrow Icon
Indicates a drop-down list. Click to list the available baud rates.

Baud Rate
Sets the baud rate for the port.
Range: [100 bps - 115200 bps]

Parity
Sets the parity bit.
Options: Even, Odd, None, Mark, Space



Stop Bits
Sets the stop bit.
Range: [1 - 2]

Line Delay (ms)
Range: [0 - 10000]

Character Delay (ms)
Not used.

Data Bits
Sets the number of data bits.
Range: [5 - 8]

UART Mode
Options: TCP Bridge, UDP Bridge

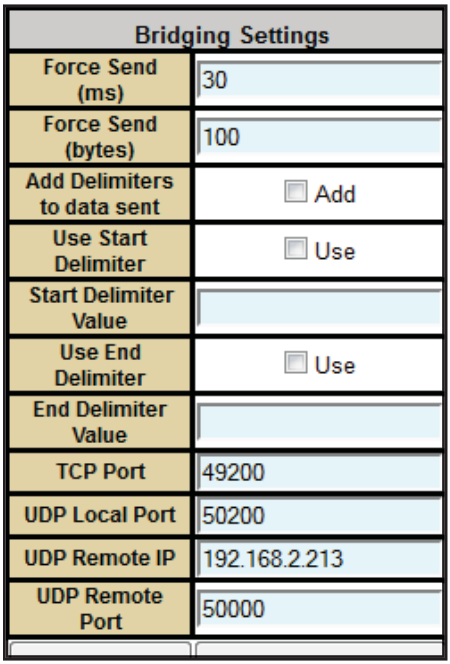
TCP / UDP Bridging Settings

UDP Protocol is used by some control systems, including Gefen's GAVA system, for faster response. When using UDP you can broadcast the message by using the IP address: 255.255.255.255. Use TCP unless otherwise instructed by your Control System User Manual, or by Gefen Technical Support. See page 58 for a full explanation of these settings.

Force Send (bytes)
If the specified number of bytes is received from the controlled device, send the collected data to the control system.

Force Send (ms)
If no data is received from the controlled device for the specified time, send the collected data to the control system.

Use End Delimiter
Options: Use (Enable / Disable)



End Delimiter Value in HEX
Range: Same as Start Delimiter

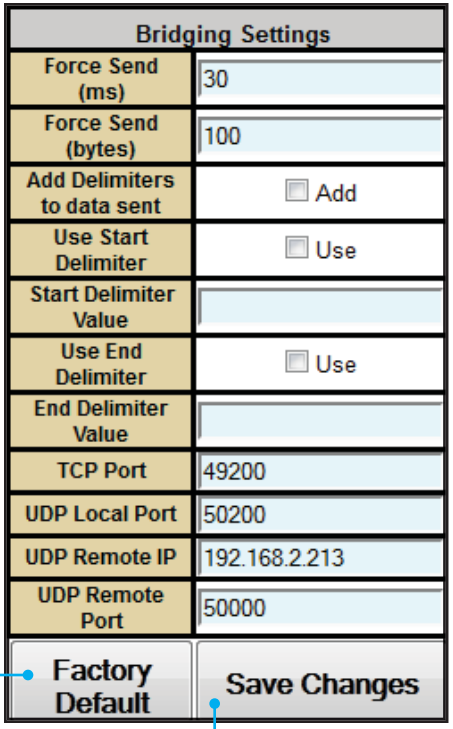
Use Start Delimiter
Options: Use (Enable / Disable)

Add Delimiters to data sent
Include the delimiter characters in the data sent to the control system.

TCP / UDP Bridging Settings

Start Delimiter Value in HEX
Range: 00 - FF ("wildcard" characters are acceptable, e.g. **)
The Start Delimiter can be up to three ASCII characters (3 bytes), in hex format. For example, 0D0A is CR + LF (Carriage Return + Line Feed). The delimiters are used by some control systems to filter incoming data. Contact Gefen Technical Support for details if you need to use them.

TCP Port #
Range: 0 - 65535



UDP Remote IP

Factory Default
Sets the selected RS-232 port to factory (default) settings.

Save Changes
Saves all changes to the selected RS-232 port. This button must be pressed after changing **each** output setting. in order to save any changes.

UDP Local Port
Range: 1024 - 65535

UDP Remote Port
Range: 1024 - 65535

IR Emitters Menu

The PACS has eight (8) IR Emitter (IR back-channel) ports. The PACS can use any one of these IR Emitter ports to send IR commands to the source device. Up to 64 IR commands can be stored per device. IR configuration files can be saved, downloaded, uploaded, edited, and deleted.

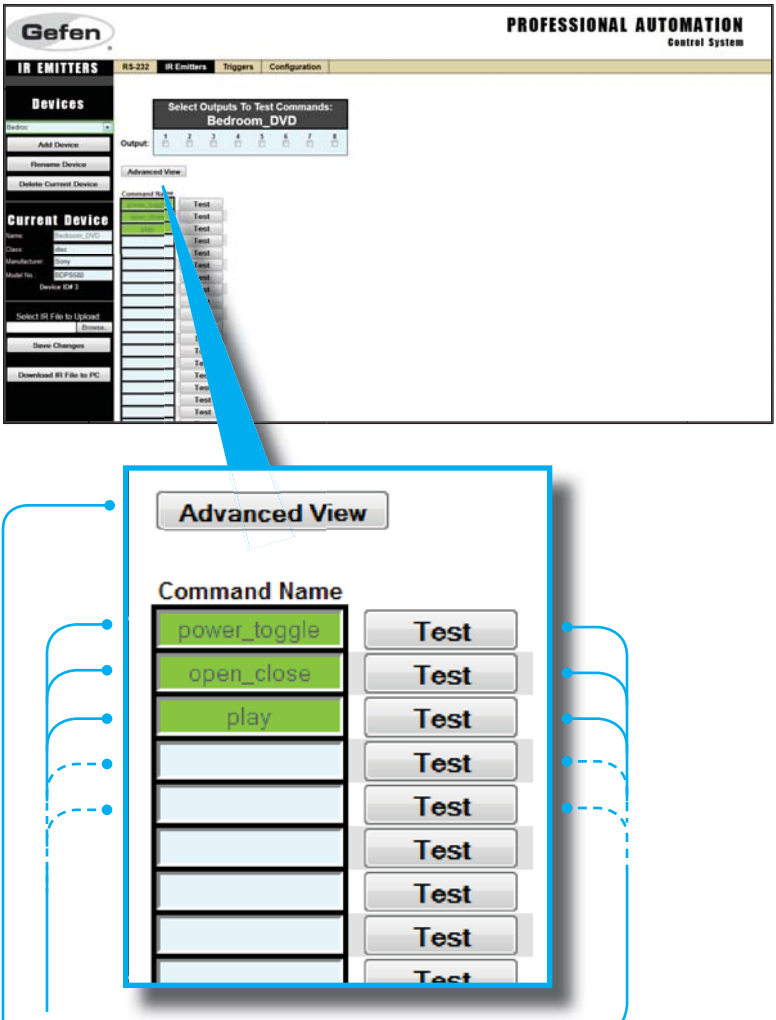
Select Outputs To Test Commands
List of IR Emitter output ports used to test the IR commands.

Select Device
List of devices which have been stored in the PACS. The PACS can store up to 20 devices.

Rename Device
Renames the currently selected device in the list.

Add Device
Adds a device to the list. This action must be performed before learning a device.

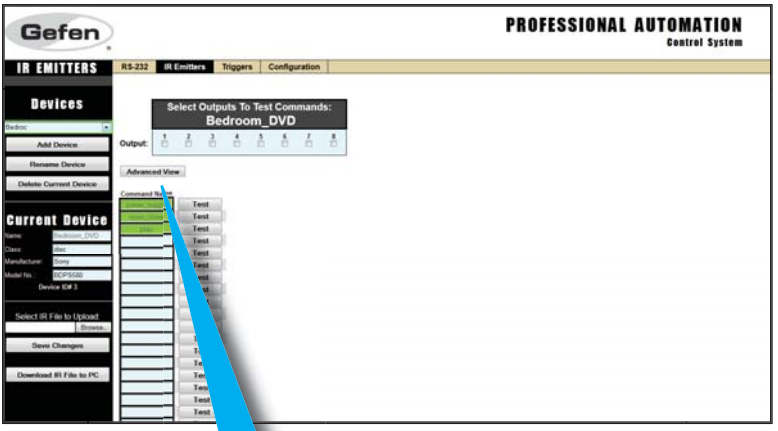
Delete Current Device
Deletes the currently selected device from the list.

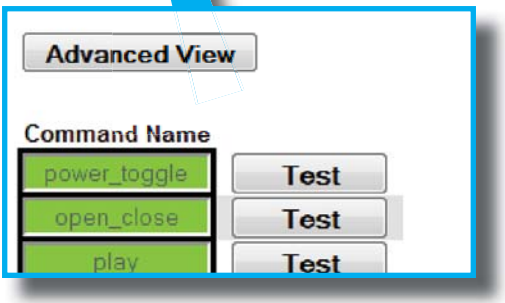


Command Name
Used to enter / edit the name of each IR command. This is a required field. Up to sixty-four (64) IR commands can be stored per device. Each Command Name can be up to 20 Alphanumeric characters or spaces.

Test
Press the Test button to validate the learned IR command. One or more outputs must be selected and an IR Emitter plugged in before test can be sent.

Advanced View
Click this link to toggle between Basic View and Advanced View.

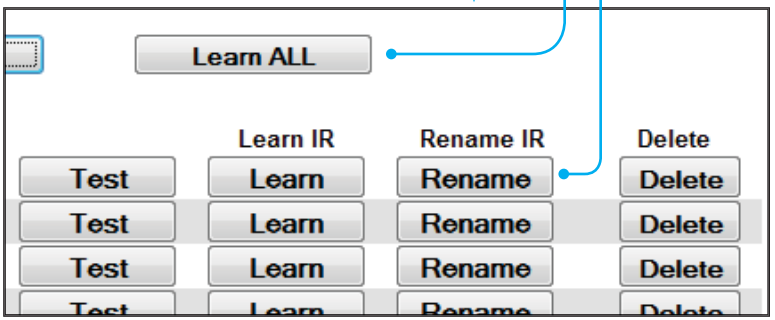




Learn All
Performs a "step-through" when learning IR commands from a template (see page 28).

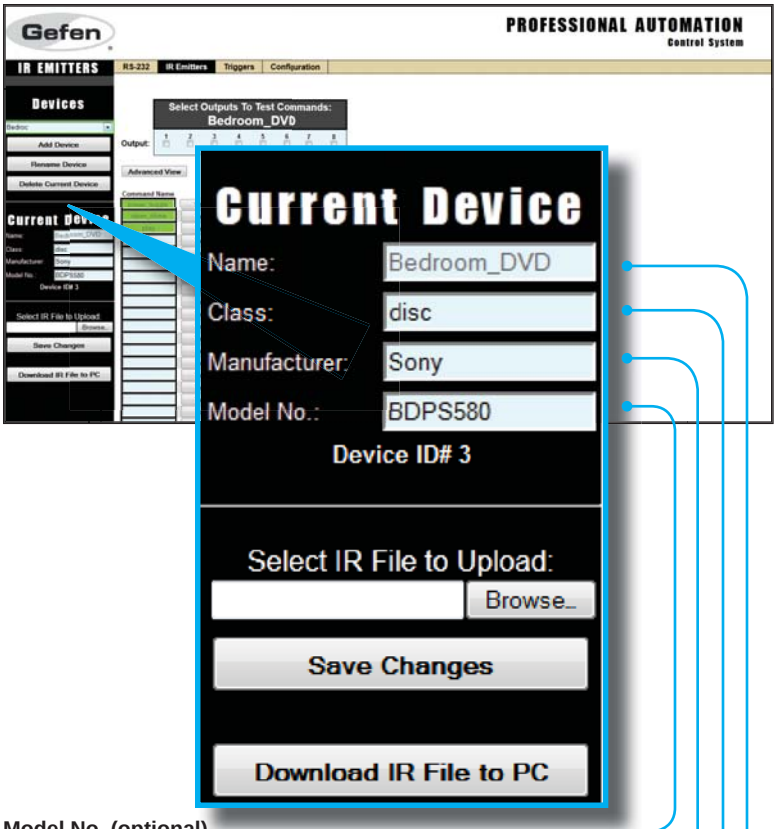
Advanced View
Click the Advanced View link to display additional options for learning or deleting IR commands.

Rename
Click the Rename button to rename the IR command.



Learn
Click the Learn button to learn a new IR command (see page 22).

Delete
Click the Delete button to delete a learned IR command. Deleted commands will be permanently removed after saving changes.

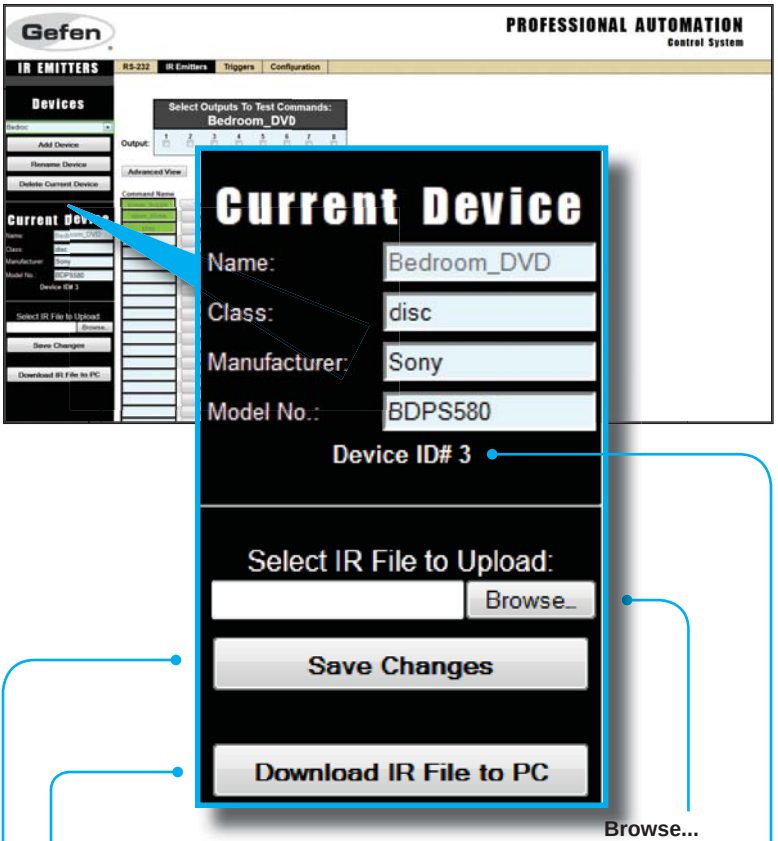


Model No. (optional)
This is the device model number (e.g. KDL40EX729, etc.) This field is used by the GAVA to sort the IR library. Max. Length: 15 characters (letters, numbers, and underscores only).

Manufacturer (optional)
This is the device manufacturer's name (e.g. Sony, Yamaha, etc). This field is used by the GAVA to sort to the IR library. 15 characters (letters, numbers, and underscores only).

Class (optional)
This is the generic class of the device: Display, Disc, AVR (A/V Receiver), or STB (Set-Top Box). This field is used by the GAVA to select the proper control template. 15 characters (letters, numbers, and underscores only).

Name
This is the Device Name of the currently-displayed device. Click the "Rename Device" box to rename the current device. Max. Length: 20 characters (letters, numbers, or underscores only)



Browse...
Click this button to open a list of files on your computer to Upload. It will open the last selected folder on your computer with a default selection of All Files (*.*).

Download IR File to PC
Press this button to save the currently-displayed Device IR commands to an XML file on your computer. Choose a folder location and filename that will allow you to easily locate the file at a later time.

Save Changes
Press this button to save any changes to the currently-displayed Device. Be sure to press “Save Changes” before navigating away from this page or selecting another Device, or your changes will be lost

Device ID
The PACS assigns an internal number to each Device in memory. You can use this number to keep track of the number of Devices you have stored in the PACS.

Adding a new IR Device

The PACS can hold up to 20 IR devices in memory. Each device may have up to 64 Commands. If you are building a library, you may need to delete some devices from the PACS once they are learned and saved, to make room for more devices. However, if you have several of the same devices with separate IR emitters, you can use the same IR "Device Name" for all of them, but specify a different output for each one when you send the commands.

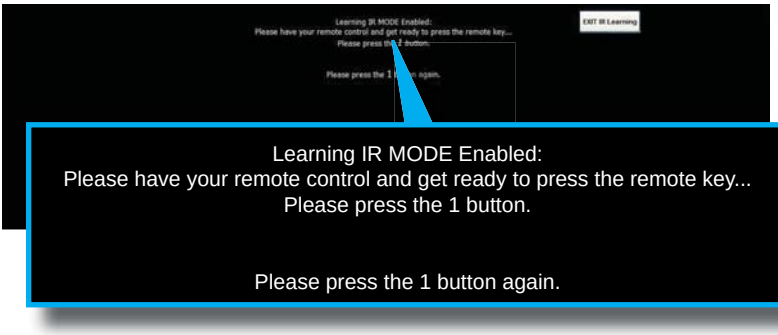
Be sure to "**Save Changes**" after learning any new commands before navigating away from the learning page.

1. Press "**Add Device**" button on PACS IR Emitters page.
2. If you have an existing learned IR code file, or wish to download an empty Command Name template for the new device, click the "Browse" button, and navigate to the location on your computer where the IR files and templates are located. Select the desired "*.gfn" file and click "Open". Otherwise, skip to Step 8.
3. Enter a Name for the new device. The name can be up to 20 characters long, and will be used to identify the device for sending IR commands.
4. Enter the Class, Manufacturer, and Model Number of the device (optional).
5. Click "**Save Changes**" to store the file
6. Select the stored device from the "******Select Device ******" pull-down menu.
7. If the IR commands were already learned for that device, the Command Names will be green, and the commands may be tested by installing an IR Emitter in front of the device's IR window, connecting the emitter to an IR Output port on the PACS, selecting that Output in the Web browser, and clicking on the "**Test**" button for that command. Verify that the device responds as expected.
8. If a blank template was stored for that device, the Command Names will appear, but they will be yellow, rather than green. This means that only the names, and not the IR data, have been stored. See "Adding a New IR Device from a Template" on page 28.
9. If you are starting a new device file, the Command Names will be empty, and the fields will be light blue. Click on the first empty Command Name window, and enter a name for the command (note that only letters, numbers, and spaces can be entered. Spaces will be replaced with underscores when the file is saved). The Command Name and Device Name are case-sensitive.
10. Click on the "**Advanced View**" button above the Command Name list. This adds the "**Learn**" and "**Delete**" buttons for each Command.

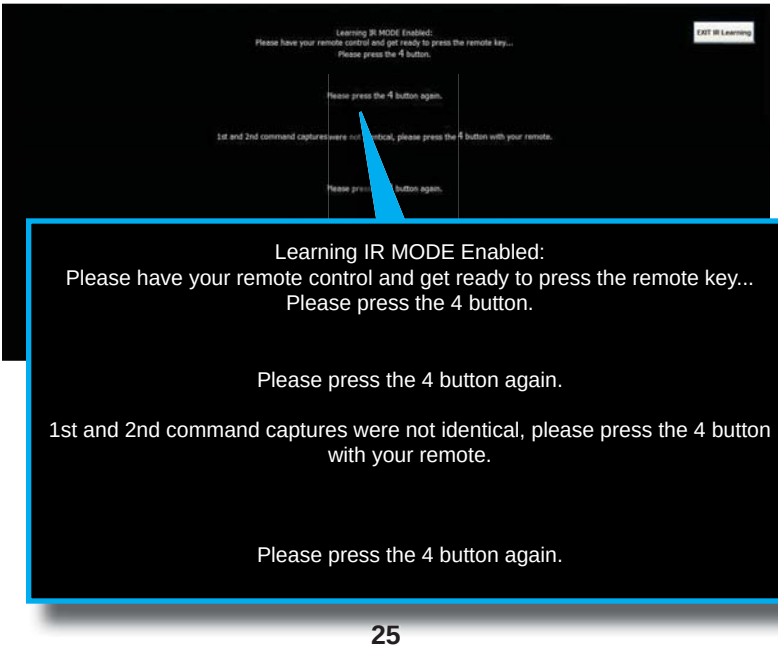
10. Find the IR remote for the new device. Make sure the batteries are fresh! Hold the remote so it is pointing at the IR window on the PACS, and is about 6” away from the window.

11. Click the “**Learn**” button for the first named Command.

12. You will be prompted to press the remote button that matches the Command Name you are learning. Press the button firmly- do not hold it down, or just hit it quickly.


Learning IR MODE Enabled:
Please have your remote control and get ready to press the remote key...
Please press the 1 button.
Please press the 1 button again.

13. You will be prompted to press the same button a second time. The PACS will confirm that the two codes match. Some IR remotes use “toggle codes”, where the IR code toggles between two different codes each time the button is pressed. The PACS will recognize this, and ask you to press the button a third and fourth time.


Learning IR MODE Enabled:
Please have your remote control and get ready to press the remote key...
Please press the 4 button.
Please press the 4 button again.
1st and 2nd command captures were not identical, please press the 4 button with your remote.
Please press the 4 button again.

14. If the commands match, the PACS will return to the main screen, and the new command will now be green.

15. If a code is learned incorrectly, you may overwrite it by repeating steps 11 - 13. The PACS will warn you that the command is already in memory, and ask you to confirm that you want to overwrite the existing code. Press "**OK**" to do so. Once a Command is learned, its Command Name may not be changed. If the name is incorrect, you must delete the Command Name, and add a new command and re-learn the code.

ADVANCED: If you are familiar with editing XML files, you can download the Config file, edit the XML file, and upload it again to the PACS. This is an advanced feature and not recommended for new users.

16. Learn each command in turn by repeating the "**Learn**" procedure (after entering each Command Name if necessary).

17. Press "**Test**" to verify that each command performs as expected (see Step 6).

18. Press "**Save Changes**" to save the learned Commands to the PACS. Be sure to do this before navigating away from the page, or the changes will be lost! You can leave the page after saving changes, and return later to learn new commands, or test/modify existing commands. All named commands **must** be learned before saving the changes. Command names that do not contain IR data will be deleted when changes are saved.

19. Once a new device has been learned, you should download the new device IR file to your computer and save it. Press the "**Download IR File**" button to do this.

20. PACS will prompt to "**Open**" or "**Save**" the file. You probably should click "**Open**" to see and check the file before saving it. A sample XML file is shown on the next page.

```
<?xml version="1.0" encoding="UTF-8"?>
  <ir_emitter>
    <dn>Bedroom_DVD</dn>
    <class>Disc</class>
    <manufacturer>Sony</manufacturer>
    <model>BDPS580</model>
    <cs>
    <c>
      <cn>power_toggle</cn>
      <freq>1175</freq>
      <p_len>64</p_len>
      <p_dat>564 149 279 ... 149 137 5149 0</p_dat>
      <p_rep>1</p_rep>
    </c>
    <c>
      <cn>power_off</cn>
      <freq>1200</freq>
      <p_len>64</p_len>
      <p_dat>564 148 280 ... 136 5007 0</p_dat>
      <p_rep>1</p_rep>
    </c>
    <c>
      <cn>volume_up</cn>
      <freq>1200</freq>
      <p_len>64</p_len>
      <p_dat>564 148 137 ... 137 5291 0</p_dat>
      <p_rep>1</p_rep>
    </c>
    </cs>
  </ir_emitter>
```

NOTE: The series of numbers contained within the opening and closing <p_dat> tags have been abbreviated due to limited page space.

21. Verify that the commands contain data, and click "File > Save as . . .", and enter a location and filename for the new file. Do not use the default "ir_emitter_xml.xml" filename, as it will overwrite earlier stored files. We recommend that you use a filename that contains the manufacturer name and model number of the device, so you can easily identify the file later. The maximum filename size is 25 characters.

22. Press "**Save**" to actually save the file to your computer

23. Repeat the above procedure for each device you wish to add to the PACS.

Adding a new IR device from a Template

Templates are useful when you want to ensure that similar commands for different product models have identical Command Names. This will simplify the process of programming your control system, and allow you to replace one disc player, for example, with another model, without having to change the control system programming.

Gefen's GAVA Control System requires that IR commands have specific name conventions that are matched to the GAVA User Interface buttons, so Templates provide an easy way to ensure that new devices have the proper names.

Using a Template also allows you to just push buttons on your IR remote as prompted, without having to simultaneously enter names and navigate the screen on your computer.

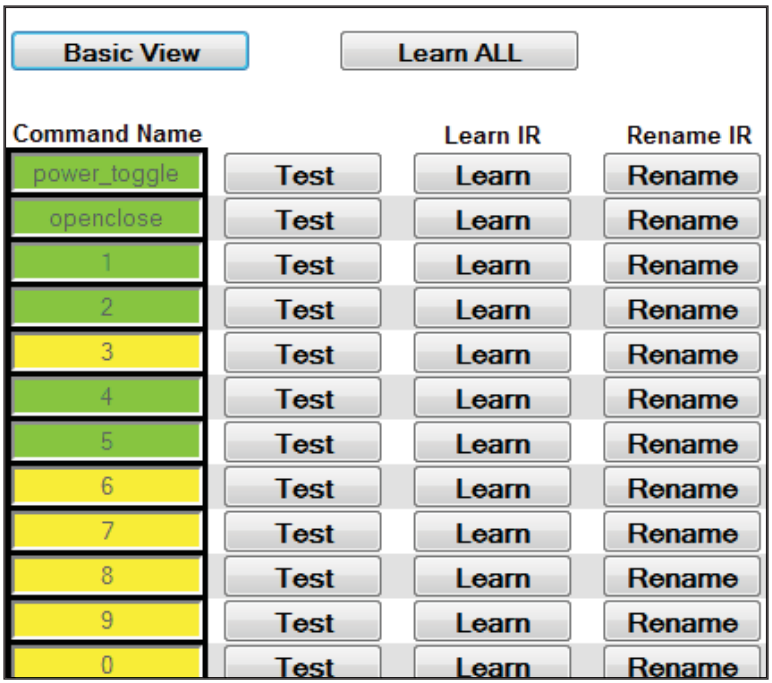
PACS comes with several pre-configured templates for the Gefen GAVA control system, which are needed to build a GAVA Library. These correspond to the different Classes of IR-controlled devices:

Template	Definition
avr	Audio/Video Receiver or Amplifier
display	Display, TV, Projector, or Monitor
disc	Disc Player (Blu-ray, DVD, CD, Music Server)
stb	Set-Top Box (Cable or Satellite Receiver)

To add a new device, using a PACS Template File:

1. Press "**Add Device**" button on PACS IR Emitters page.
2. Enter a Name for the new device. The name can be up to 20 characters long, and will be used to identify the device for sending IR commands.
3. Optionally, enter the device Manufacturer and Model Number.
4. Click the "**Browse**" button, and navigate to the location on your computer where the IR templates are located. Select the desired "*.gft" file and click "**Open**".
5. Click "**Save Changes**" to store the file.
6. Select the stored device from the "******Select Device ******" pull-down menu.

6. Since this is a template file, the Command Names will be yellow, rather than green. This means that only the names, and not the IR data, have been stored.



7. Click on the "**Advanced View**" button above the Command Name list. This adds the "**Learn**" and "**Delete**" buttons for each Command, and a button named "**Learn ALL**" above.

8. Find the IR remote for the new device. Make sure the batteries are fresh! Hold the remote so it is pointing at the "IR" window on the PACS, and is about 6" away from the window.

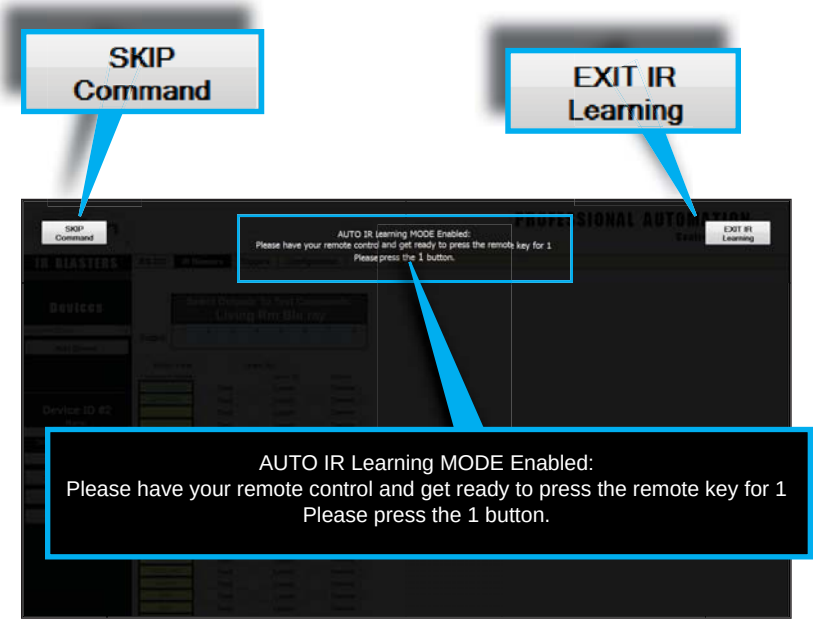
9. Click the "**Learn ALL**" button.

10. You will be prompted to press the remote button that matches the Command Name you are learning. Press the button firmly- do not hold it down, or just hit it quickly.

11. You will be prompted to press the same button a second time. The PACS will confirm that the two codes match. Some IR remotes use "toggle codes", where the IR code toggles between two different codes each time the button is pressed. The PACS will recognize this, and ask you to press the button a third and fourth time.

12. If the commands match, the PACS will prompt you for the next Command in the list.

13. If you are prompted for a command that does not exist on your remote, you can press the "**SKIP Command**" button, and you will be prompted for the next button on the list, or you can press "**EXIT IR Learning**" to end the process. If you start the Learn ALL process again, it will start with the first un-learned command, and skip any commands that have previously been learned.


SKIP Command
EXIT IR Learning
AUTO IR Learning MODE Enabled:
Please have your remote control and get ready to press the remote key for 1
Please press the 1 button.

14. Learn each command in turn until all have been learned.

15. The learned command will now be green. Any commands that were skipped or not learned successfully will still be yellow.

16. You can manually add any commands that were not in the template afterwards. Since commands are accessed by name, and not by number, the sequence of learning commands is not critical. Commands that are in the Template cannot be re-named. They can be deleted, and then new commands may be added at the bottom after saving the changes. There is a maximum of 64 commands per device, so you may need to delete some unused commands to create room for any new ones.

17. Press "**Test**" to verify that each command performs as expected.

18. You can delete any commands that are not available for that specific remote by clicking the "**Delete**" button for those commands. Deleted buttons will be removed when changes are saved. Un-learned template commands will be saved for later learning.

19. Press "**Save Changes**" to save the learned Commands to the PACS. Be sure to do this before navigating away from the page, or the changes will be lost! You can leave the page after saving changes, and return later to learn new commands, or test/modify existing commands.

20. Once a new device has been learned, you should click the "**Download IR File to PC**" button to download and save the new device IR file to your computer.

21. PACS will prompt to "**Open**" or "**Save**" the file. You probably should click "**Open**" to see and check the file before saving it.

22. Verify that the commands contain data, and click "File > Save as . . .", and enter a location and filename for the new file. Do not use the default "ir_emitter_xml.xml" filename, as it will overwrite earlier stored files. We recommend that you use a filename that contains the manufacturer name and model number of the device, so you can easily identify the file later.

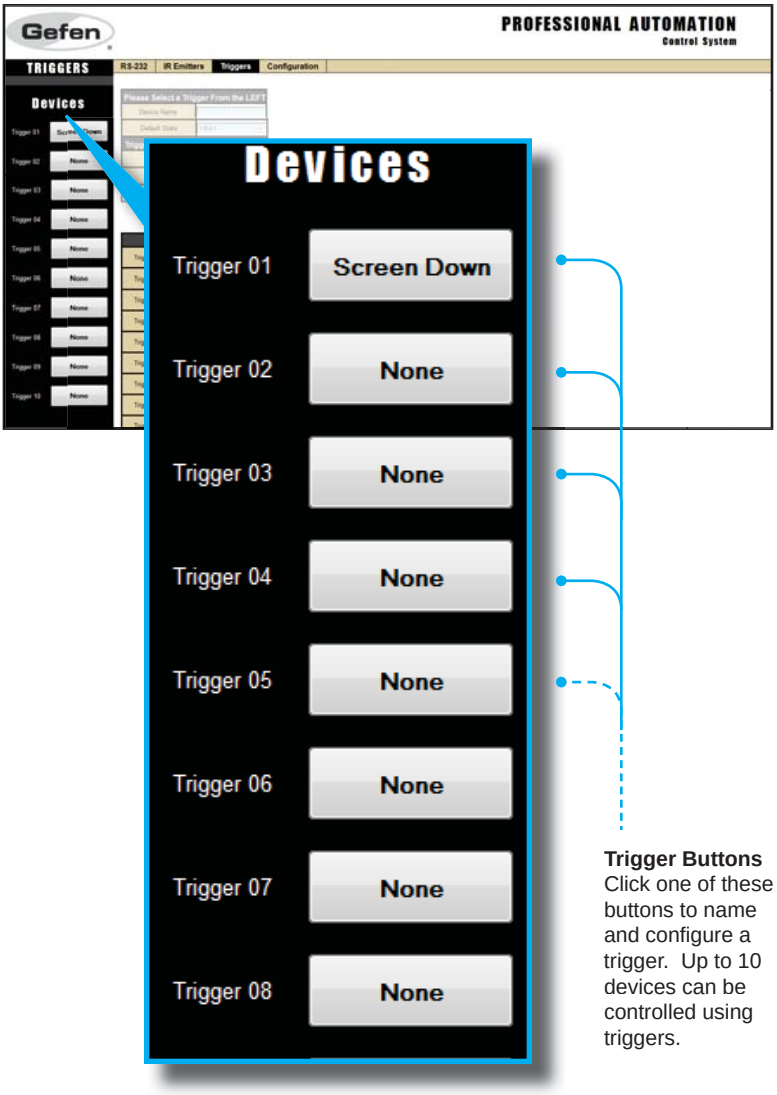
23. Press "**Save**" to actually save the file to your computer.

24. Repeat the above procedure for each device you wish to add to the PACS.

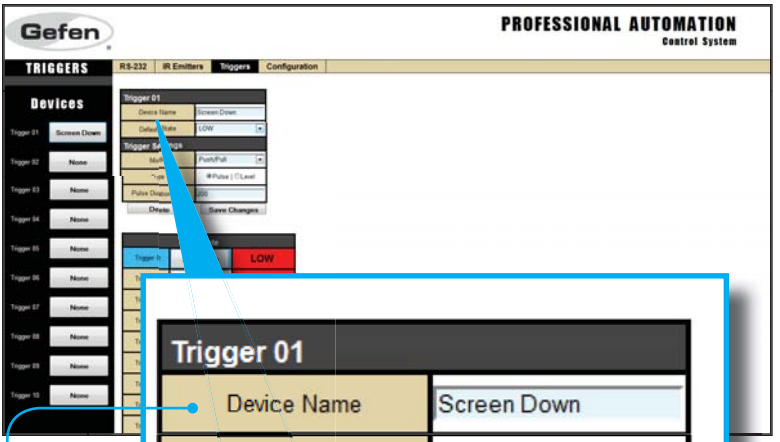
IMPORTANT: Be sure to "**Save Changes**" after learning any new commands before navigating away from the learning page.

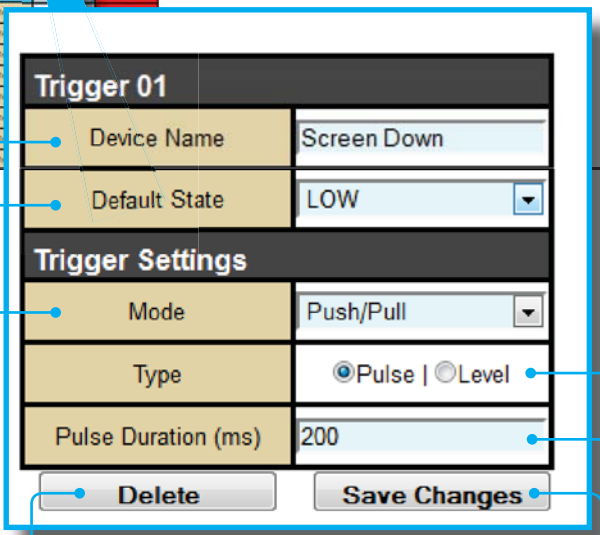
Triggers Menu

The PACS provides ten (10) 12V triggers which can be used for controlling lighting system, curtains, motorized screens, or various automation devices. Each trigger can be configured separately.



Trigger Buttons
Click one of these buttons to name and configure a trigger. Up to 10 devices can be controlled using triggers.





Delete
Deletes the trigger name and resets settings to default.

Save Changes
Saves the trigger event.

Mode*
Sets the voltage mode
Options: Open Collector, Push/Pull.

Pulse Duration (ms)
Required when Trigger Type is set to Pulse.
Range: 0 -10000.
(1000 = 1 sec.)

Default State
Sets the default state of the trigger event.
Options: Low, High

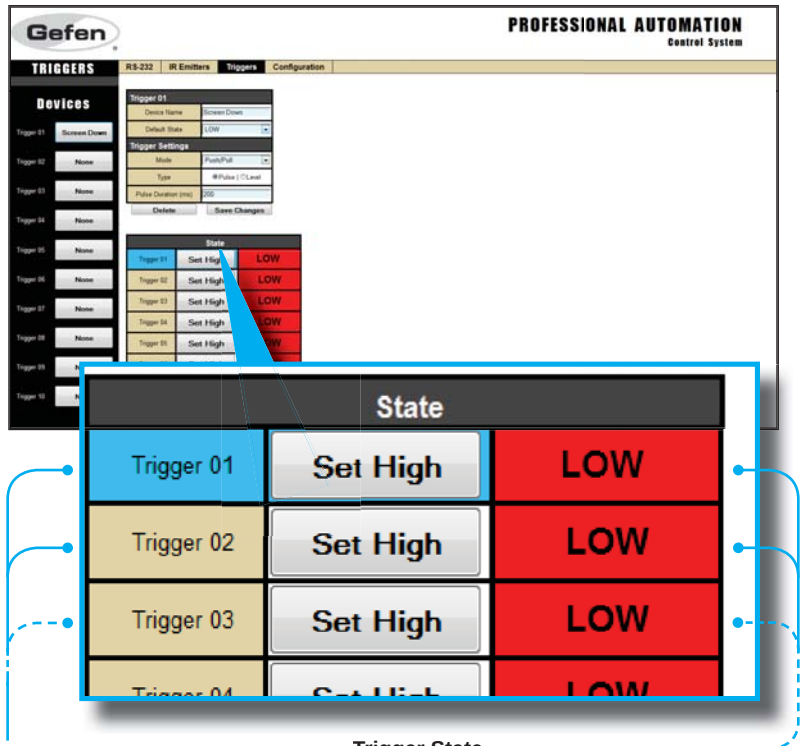
Type
Sets the type of trigger.
If set to Pulse, the Pulse Duration must be specified.
Level stays at the new state until changed.

Device Name
Enter the name of the device associated with this trigger event.

***When set to Push/Pull Mode, trigger output is set to High (+12V) or Low (0V), depending upon the default state. When set to Open Collector Mode, trigger output is set to open circuit (floating) or connected to G (ground).

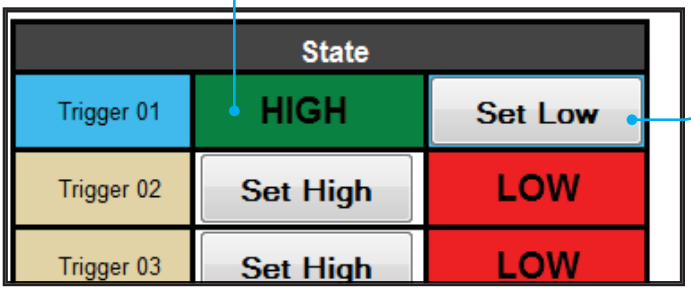
Testing Triggers

Press the “Set High” or “Set Low” buttons to manually change the state of a trigger. If the “Type” is set to “Pulse”, the trigger output will revert to its default state after the Pulse Duration period has expired.



Trigger ID
Trigger 01 - Trigger 10

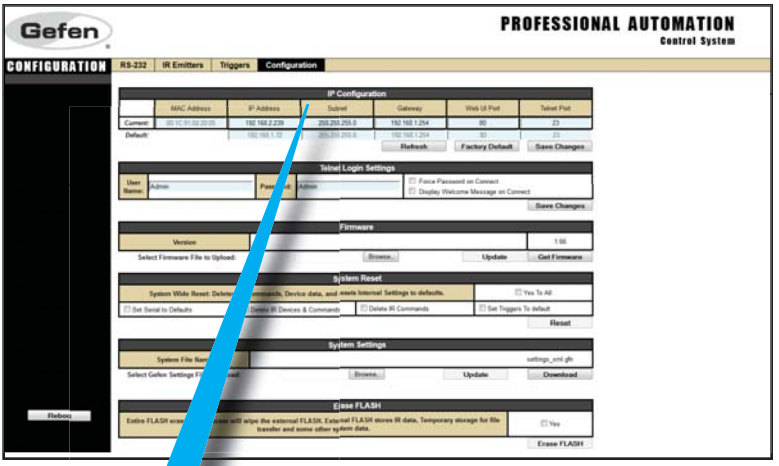
Trigger State
Indicates the current state of the trigger. If the active trigger state is low, then LOW is displayed in red. If the active trigger state is high, then HIGH is displayed in green. Press the Set High or Set Low button to change the current state of a trigger.

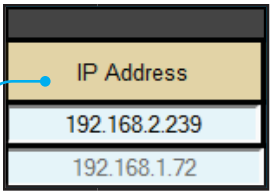


Configuration Menu

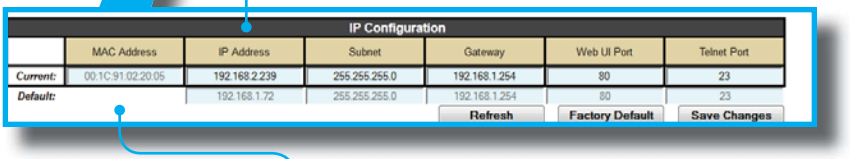
The Configuration Menu allows management of TCP/IP configuration, login credentials, firmware upgrades, and system resets.

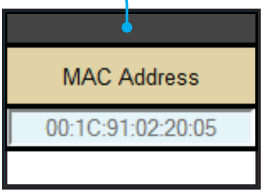
IP Configuration





IP Address
Sets the IP address. *This must be a valid and unused address on your local network.* Maximum value for each number is 255.



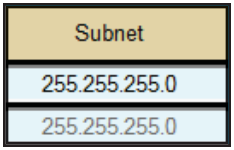


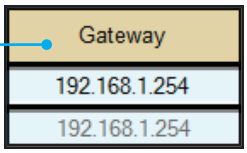
MAC Address
The MAC address cannot be changed.

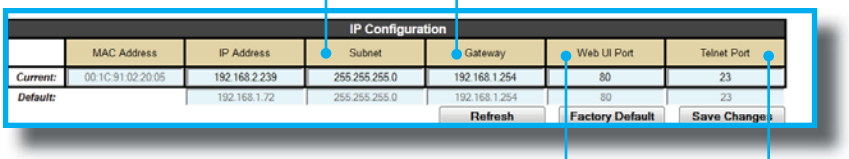
NOTE: The top row (Current) indicates the current settings. The second row (Default) indicates the default settings. The default settings cannot be changed.

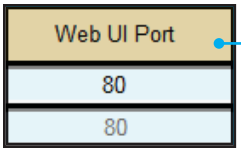
Subnet
Sets the subnet mask. The default settings is 255.255.255.0

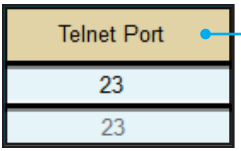
Gateway
Sets the IP address of your router (IP gateway). Maximum value for each number is 255.





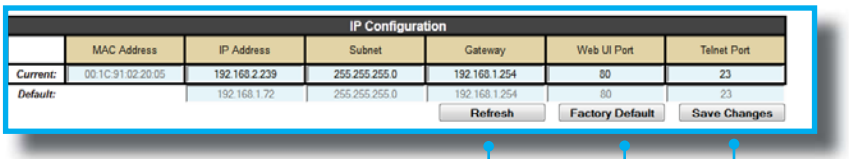


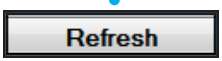


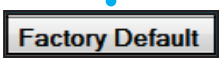


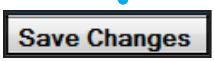
Web UI Port
Sets the HTTP listening port. The default setting is 80.

Telnet Port
Sets the Telnet listening port. The default port setting is 23.







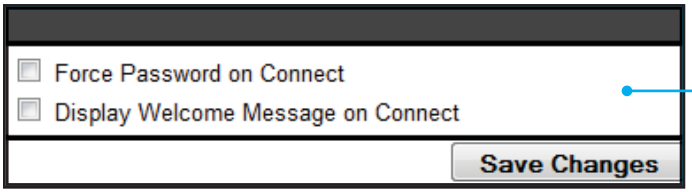


Refresh
Refreshes the IP configuration to obtain the latest changes.

Factory Default
Sets the IP Configuration settings to factory (default) settings.

Save Changes
Saves the current changes to the IP Configuration settings.

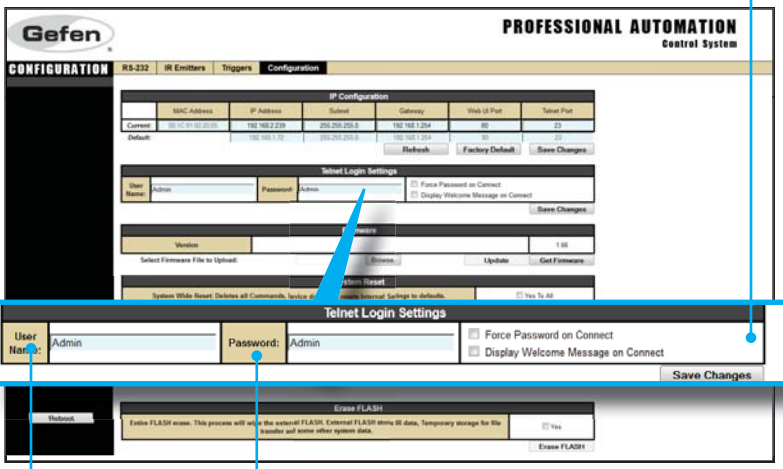
Telnet Login Settings



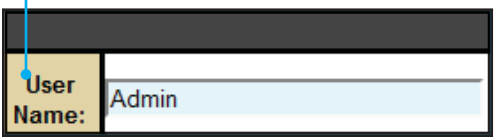
Force Password on Connect
Forces password prompt when connecting via Telnet.

Display Welcome Message on Connect
Displays a "`Welcome to PACS Telnet Server`" message when Telnet connection opens.

Save Changes
Saves the current changes to the Telnet Login Settings.

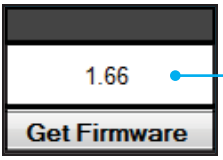


Password
Sets the password. Maximum password length is 20 characters. The password is case-sensitive.

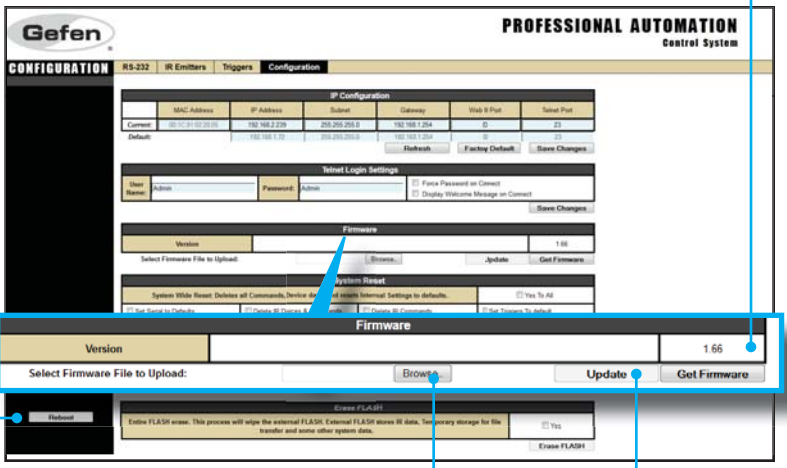


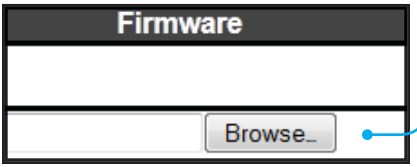
UserName
Sets the user name. Maximum user name length is 20 characters. The user name is case-sensitive.

Firmware Update

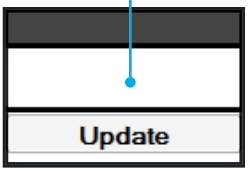


Get Firmware
Checks the Gefen Web site for the latest firmware. The current version of firmware is displayed above this button.





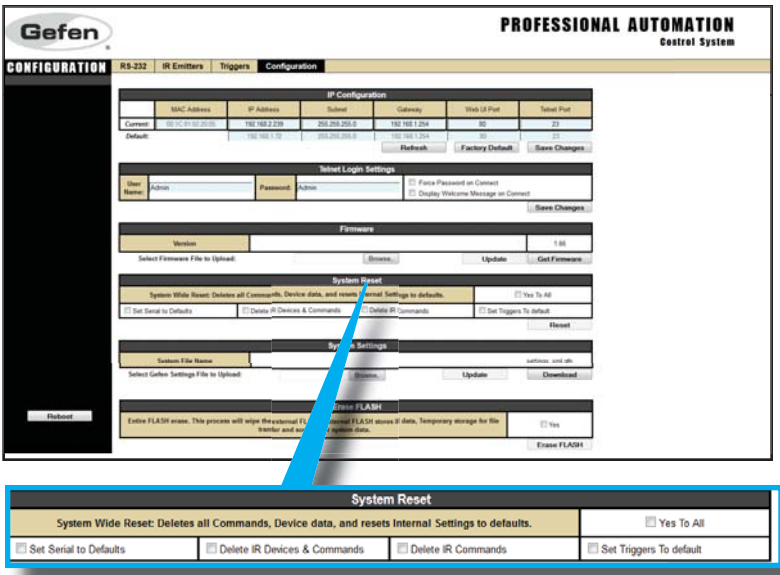
Browse...
Click the Browse... button to select the firmware file after it has been downloaded.



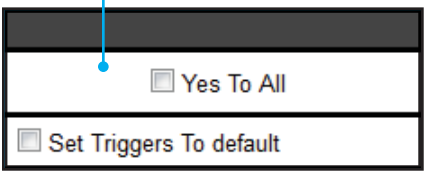
Update
Click the Update button after the firmware file has been selected using the Browse... button.

Reboot
Reboot the PACS after making any configuration changes.

System Reset



System Reset
System Wide Reset: Deletes all Commands, Device data, and resets Internal Settings to defaults.
Yes To All
Set Serial to Defaults
Delete IR Devices & Commands
Delete IR Commands
Set Triggers To default

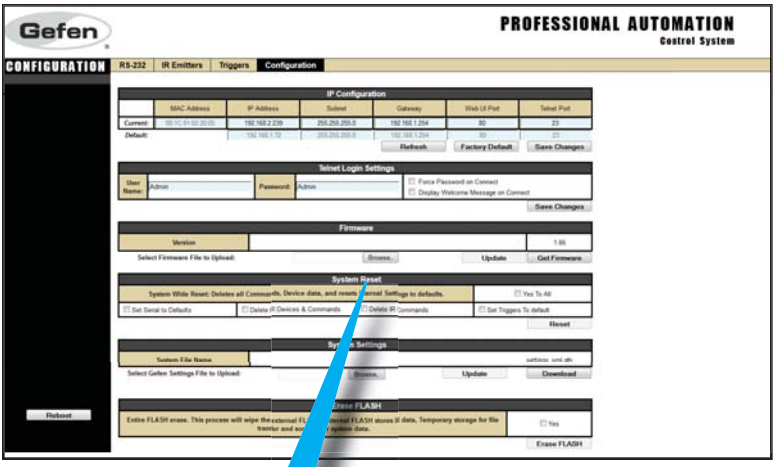


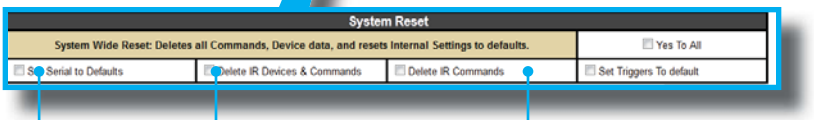
Yes To All
Check this box to perform a System-Wide Reset during a reset procedure.

Set Triggers To default
Place a check mark in this box to set triggers to default settings when resetting the PACS.

ATTENTION: A System-Wide Reset will *delete all* Commands and Device data, reset the IP address, and reset the PACS to factory (default) settings.

WARNING: Your IP connection will be dropped if you change the IP address. You must reset your computer to communicate with the new IP address and then reopen your Web browser and go to the new address.




System Reset
System Wide Reset: Deletes all Commands, Device data, and resets Internal Settings to defaults.
Yes To All
Set Serial to Defaults
Delete IR Devices & Commands
Delete IR Commands
Set Triggers To default

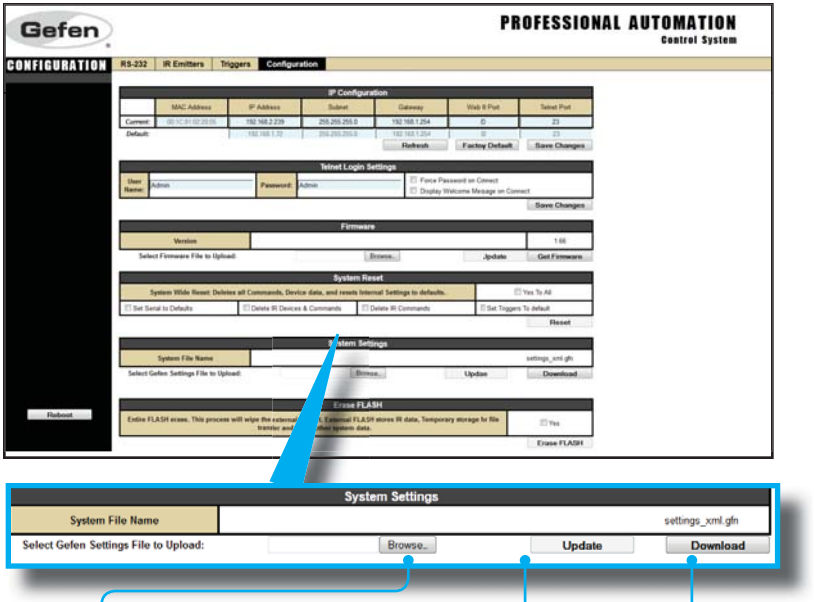
Delete IR Commands
Place a check mark in the box to delete all learned IR commands during a reset.

Delete IR Devices & Commands
Place a check mark in the box to delete all IR devices and learned IR commands during a reset.

Delete IR Commands
Place a check mark in the box to set the serial ports to their default settings.

System Settings

The System Settings section allows you to upload or restore a file containing all of the IP settings, RS-232 settings, trigger settings, and all IR files, devices, and commands. The default name of this XML file is "Settings_xml.gfn". This file may be copied to another PACS, which will then be an exact duplicate of the source PACS (please note that you will have to change the IP address of the duplicate PACS if both units will be connected to the same network).



Browse...
Click the *Browse...* button to select the settings file to upload.

Update
Click the *Update* button to upload the settings file to the PACS.

Download
Saves the PACS settings to a file on your computer.

It is important to understand that this XML file does not actually exist in the PACS. Rather, it is created “on-the-fly” by the Web GUI when it is downloaded. When a new settings file is presented for an update, it is parsed by the PACS firmware, and the data is stored in the appropriate locations in the PACS memory.

When a new settings file is uploaded, any new data is added to the existing data in the PACS, and if there are conflicts, the new data will overwrite the existing data.

For example, if the PACS has an IR device named “TV” that has a “power_toggle” command, and a new device is uploaded that is also named “TV”, but has “power_on” and “power_off” commands instead of the “power_toggle” command, the PACS IR file will now have the new power on/off commands, but the old “power_toggle” button from the old device will remain, since it was not overwritten.

Therefore, if you are replacing old IR files with new ones, you should delete the old devices before adding the new ones.

IP (TELNET) CONTROL SETUP

The PACS may be manually operated using the Web server Graphical User Interface (GUI), or by an automation system (such as the Gefen GAVA System) that is capable of sending Telnet serial commands to the PACS via IP.

The Web interface allows setting RS-232 communications parameters. RS-232 device commands are not stored in the PACS, and cannot be sent through the Web interface. The PACS serves only as an IP-to-RS-232 bridge, allowing a control system to communicate with a remote device through its network connection to the PACS, instead of through a dedicated serial connection.

To send RS-232 commands to any of the three ports on the PACS, the control system needs to communicate with the IP address of the PACS (Default is 192.168.1.72- see page 10 to change the IP address), and the TCP Port Number that is associated with the desired RS-232 Port. The Port Numbers are set in the RS-232 menu in the Web page. The defaults are:

RS-232 Port	TCP Port Number
Port 1	49200
Port 2	49201
Port 3	49202

RS-232 parameters must also be set to match the requirements of the device being connected. The user manual for the device should list the proper RS-232 settings. Note that “handshaking” or “flow control” for the connected device must be set to “None”, as PACS does not support hardware or XON/XOFF flow control.

For example, to control a Gefen 4x1 HD Switcher (GTV-AUDDEC-N) connected to RS-232 Port #1:

1. Open the PACS Web interface, and click on the RS-232 Tab.

2. For Output 1, enter the following settings:

Description	Gefen 4x1 HD Switcher
Baud Rate	19200
Data Bits	8
Parity	None
Stop Bits	1
Line Delay	0
UART Mode	TCP Bridge
TCP Port	49200 (default)

3. Click “Save Settings”.
4. Open HyperTerminal or another Terminal Emulation program on your computer.
5. Open a new session with a Host Address that matches the IP address of the PACS, and set the Port Number to 49200.
6. Type “`help ?`” in the terminal window, and a list of commands from the AUDDEC-N should scroll in the window, indicating successful communication with the AUDDEC-N.

Once communications are verified, your control system should be able to connect to the PACS using the same IP address and Port Number, send commands, and receive feedback from the connected device.

IMPORTANT: When sending RS-232 commands, a *carriage return* and a *line feed* character must be included at the end of each line. Telnet Commands, Device Names, and Command Names are all case-sensitive.

IP Configuration

Command	Description
#change_trig_state	Changes the current trigger state
#display_telnet_welcome	Set Telnet welcome message on login
#load_trig_params	Loads trigger parameters from memory
#save_trig_params	Saves trigger parameters to memory
#sgateway	Sets the IP gateway address
#set_http_port	Sets the Web server listening port
#sipadd	Sets the IP address of the PACS
#snetmask	Sets the IP network mask
#set_pass	Prompts for password when using Telnet
#set_serial_mode	Sets the specified serial port mode
#set_serial_params	Sets the serial port parameters
#set_telnet_port	Sets the Telnet listening port
#set_trig_params	Sets the trigger parameters
#set_user_name	Sets the user name for the login procedure
#show_pass	Prompts for password when using Telnet
#show_serial_connect	Displays the serial port connection status
#show_serial_mode	Displays the current serial port modes
#show_serial_params	Displays the current serial port parameters
#show_trig_params	Displays the current trigger parameters
#show_user_name	Prompts for user name when using Telnet
#system_wide_reset	Resets parts of / or the entire PACS
#use_telnet_pass	Use password during Telnet sessions

#change_trig_state Command

The #change_trig_state command changes the current trigger state. Specify the trigger number and then the initial state (low or high) of the trigger.

Syntax:

```
#change_trig_state param1 param2
```

Parameters:

param1	Trigger	[1 - 10]
param2	State	[0 - 1]

State	Meaning
0	Low
1	High

#display_telnet_welcome Command

The #display_telnet_welcome sets (enables/disables) the Telnet welcome message on login.

Syntax:

```
#display_telnet_welcome param1
```

Parameters:

param1	State	[0 - 1]

State	Meaning
0	Do not display welcome message
1	Display welcome message

#load_trig_params Command

The #load_trig_params command loads trigger settings from the memory.

Syntax:

```
#load_trig_params
```

Parameters:

None

#save_trig_params Command

The #save_trig_params command saves trigger settings to the memory.

Syntax:

```
#save_trig_params
```

Parameters:

None

#sgateway Command

The #sgateway sets the IP gateway (router) address. Dot-decimal notation must be used when specifying the IP address.

Syntax:

```
#sgateway param1
```

Parameters:

param1 IP gateway

Example:

```
#sgateway 192.168.1.1
```

Default:

```
192.168.1.254
```

#set_http_port Command

The #set_http_port command sets the Web server listening port.

Syntax:

`#set_http_port param1`

Parameters:

param1	Port	[0 - 65535]

Default:

`80`

#sipadd Command

The #sipadd command sets the IP address for the PACS. Dot-decimal notation must be used when specifying the IP address. The default IP address is `192.168.1.72`. The PACS must be rebooted to change the IP address.

WARNING: Your IP connection will be dropped if you change the IP address. You must reset your computer to communicate with the new IP address and then reopen your Web browser and go to the new address.

Syntax:

`#sipadd param1`

Parameters:

param1

Default:

`192.168.1.72`

#snetmask Command

The #snetmask command sets the IP network mask. Dot-decimal notation must be used when specifying the IP network mask. The default network mask is 255.255.255.0

Syntax:

```
#snetmask param1
```

Parameters:

param1	Network mask

Default:

```
255.255.255.0
```

#set_pass Command

The #set_pass command sets Telnet password. The maximum length of the *param1* is 20 characters. The password is case-sensitive.

Syntax:

```
#set_pass param1
```

Parameters:

param1	Password

Default:

Admin

#set_serial_mode Command

The #set_serial_mode command sets the specified serial port mode.

Syntax:

```
#set_serial_mode param1 param2
```

Parameters:

param1	Serial port	[1 - 3]
param2	Mode	[1 - 3]

Mode	Meaning
1	Terminal*
2	TCP Bridge
3	UDP Bridge

Example:

```
#set_serial_mode 1 2
```

Default:

Default is all ports in “TCP Bridge” mode.

Notes:

*Only Serial Port 3 can be set to Terminal Mode.

#set_serial_params Command

The #set_serial_params command sets the serial port parameters.

Syntax:

```
#set_serial_params param1 param2 param3 param4 param5 param6
```

Parameters:

param1	Serial port	[1 - 3]
param2	Word length	[5 - 8]
param3	*Stop bits*	[1 - 2]
param4	Parity	

Parity	Meaning
n	None
e	Even
o	Odd
m	Mark
s	Space

param5	Baud rate	[9600 - 115200]
param6	Line delay (ms)	[0 - 10000]

Example:

```
#set_serial_params 1 8 1 n 9600 0
```

Default:

Ports: All

Data Bits: 8

Stop Bit: 1

Parity: None

Baud Rate: 19200

Line Delay: 0

#set_telnet_port Command

The #set_telnet_port command sets the Telnet listening port. The default port value is 23.

Syntax:

```
#set_telnet_port param1
```

Parameters:

param1	Port	[0 - 65535]

#set_trig_params Command

The #set_trig_params command sets the input trigger parameters.

Syntax:

```
#set_trig_params param1 param2 param3 param4
```

Parameters:

param1	Trigger channel	[1 - 10]
param2	Mode	[1 - 2]

Mode	Meaning
1	Push-Pull (PP)
2	Open Collector (Drain) (OD)

param3	Default State	[0 - 1]

State	Meaning
0	Low
1	High

param4	Pulse duration (ms)	[0 - 10000]

Notes:

Set *param1* to 0 to apply each trigger parameter to all trigger channels.

#set_user_name Command

The #set_user_name command sets the Telnet user name. The maximum length of *param1* is 20 characters. The user name is case-sensitive.

Syntax:

```
#set_user_name param1
```

Parameters:

param1	User name

Default:

Admin

#show_pass Command

The #show_pass command shows the Telnet password for login (if required).

Syntax:

```
#show_pass
```

Default:

```
Admin
```

#show_serial_connect Command

The #show_serial_connect command displays the serial port connection status.

Syntax:

```
#show_serial_connect
```

Parameters:

None

Example:

```
#show_serial_connect

You are connected to Serial Port 3
```

Note:

If you are connected via TCP, it will display:

```
You are not connected to a Serial Port.
```

#show_serial_mode Command

The #show_serial_mode command displays the current serial port modes.

Syntax:

```
#show_serial_mode param1
```

Parameters:

param1	Serial Port number	[1 - 3]

Example:

```
#show_serial_mode 1

Serial port 1 working mode is: TCP Bridge Mode
```

Default:

All serial ports are in TCP Bridge mode.

#show_serial_params Command

The #show_serial_params command displays the specified serial port parameters.

Syntax:

```
#show_serial_params param1
```

Parameters:

param1	Serial port	[1 - 3]

Example:

```
#show_serial_params 1

Serial Port 1 parameters:
Word length = 8 bits
Stop bits = 1 bit
Parity = No
Baud rate = 19200 bps
Line delay = 0 ms
```

#show_trig_params Command

The #show_trig_params command displays the current trigger parameters. *param1* specifies the trigger (1 - 10) to query. Set *param1* to 0 to display the parameters for each of the 10 triggers.

Syntax:

```
#show_trig_params param1
```

Parameters:

param1	Trigger	[1 - 10]

Example:

```
#show_trig_params 1

ShowTrigParams:
  Channel = 1
  Description = Screen Down
  Mode = TRIG_PP
  CurrentState = TRIG_Low
  PulseDuration = 5000 ms
```

#show_user_name Command

The #show_user_name command returns the user name required for login.

Syntax:

```
#show_user_name
```

Parameters:

None

Default:

Telnet login: Admin

#system_wide_reset Command

The #system_wide_reset command performs a system-wide reset. Each parameter specifies the hardware to reset.

Syntax:

```
#system_wide_reset param1
```

Parameters:

param1 Setting [0 - 6]

Parity	Meaning
0	Reboot only
1	Delete IP settings
2	Delete Serial settings
3	Delete IR devices and commands
4	Delete IR commands
5	Delete triggers
6	Delete All

Notes:

The “System Wide Reset” command in the Web interface is identical to `#system_wide_reset 6` (Delete All).

#use_telnet_pass Command

The #use_telnet_pass command requires or disables login credentials.

Syntax:

```
#use_telnet_pass param1
```

Parameters:

param1 State [0 - 1]

Value	Meaning
0	Disable password
1	Enable (force) password

Default:
Disabled (no password required)

Bridging Settings

RS-232 Feedback and Delimiters

One advantage of RS-232 serial control over IR control is that RS-232 offers 2-way communications between a device and the control system. This allows the controlled device to provide feedback to confirm that its operating state matches the control system's assumptions. For example, when the control system sends Volume Up or Volume Down commands to the device, feedback allows the device to send its current volume setting back to the control system. This prevents the device from getting out of sync with the controller, especially if the user changes the volume manually on the device, or with an IR remote. It also allows the control system to accurately track the current power state, input settings, and other important data.

However, in some cases, the controlled device might send more data than the control system can easily decode (parse) and act on, or may send random data that the control system does not require or understand.

Delimiters are supported by the PACS to control feedback data sent from a controlled device to the control system. Delimiters allow the PACS to ignore, or to collect and store the data, until a recognizable command arrives, and then send that complete command to the control system.

If a "Start Delimiter" is specified, the PACS will ignore feedback from the controlled device until the specified string of characters arrives. The string may be one, two, or three specified hex characters (bytes) from "00" – "ff" each. Each character can be specified, or "**"may be used if any character can appear in the string (a "wild card").

When the "Start Delimiter" is detected, the PACS will begin to collect the data string that follows in an internal buffer memory until either:

1. An "End Delimiter" has been specified and is detected,
2. The specified time-out is exceeded, or
3. A specified maximum number of bytes (up to 255) are collected

When any of these events occur, the data in the buffer is sent to the control system over the IP connection.

The Start Delimiter, End Delimiter, Force Send Timeout, and Force Send Byte Count can all be specified in the Web Interface, or through Telnet commands.

The End Delimiter has the same parameters as the Start Delimiter- zero, one, two, or three characters or "wild cards".

Note that the delimiters only affect feedback from a controlled device- they have no effect on commands sent from the PACS to the device.

Command	Description
#set_adddel	Sets add delimiter mode
#set_end_del	Sets end-delimiter mode and value
#set_send_byte_cnt	Sets the end-delimiter mode and value
#set_send_time_out	Sets the time-out value for sending data collected from a device
#set_start_del	Sets start-delimiter mode and value
#set_tcp_br_port	Sets the TCP Bridge server listening port
#set_udp_br_port	Sets the UDP port
#set_udp_remote_br	Sets UDP bridge parameters

#set_adddel Command

The #set_adddel command enables / disables the option to include the delimiter characters in the data sent to the control system.

Syntax:

```
#set_adddel param1
```

Parameters:

param1 State [0 - 1]

Value	Meaning
0	Off
1	On

Example:

```
#set_adddel 0
Add delimiter mode to OFF
```

#set_end_del Command

The #set_end_del command sets the end-delimiter mode and value.

Syntax:

```
#set_end_del param1 param2 param3
```

Parameters:

param1	Serial port	[1 - 3]
param2	On / Off	[0 - 1]
param3	Delimiter value	[00 - FF]

Example:

```
#set_end_del 1 1 B0
```

Notes:

If *param2* is set to 0, then the start delimiter is turned “off”. *param2* is used to “enable” or “disable” the delimiter value.

#set_send_byte_cnt Command

The #set_send_byte_cnt command sets the end-delimiter mode and value.

Syntax:

```
#set_send_byte_cnt param1 param2
```

Parameters:

param1	Serial port	[1 - 3]
param2	Byte count	[00 - 255]

Example:

```
#set_send_byte_cnt 1 100
```

Notes:

Default value for *param2* is 64.

#set_send_time_out Command

The #set_send_time_out command sets the timeout value for sending data collected from a device to the control system in Bridging Mode when a Start Delimiter and End Delimiter have been set. If no data has been collected for the specified time, the data is sent without waiting for the End Delimiter.

Syntax:

```
#set_send_time_out param1 param2
```

Parameters:

param1	Serial port	[1 - 3]
param2	Time out value (ms)	[0 - 255]

Example:

```
#set_send_time_out 1 30
```

Notes:

Default value for *param2* is 30 milliseconds.

#set_start_del Command

The #set_start_del command sets the start-delimiter mode and value.

Syntax:

```
#set_start_del param1 param2 param3
```

Parameters:

param1	Serial port	[1 - 3]
param2	On / Off	[0 - 1]
param3	Delimiter value	[00 - FF]

Examples:

```
#set_start_del 1 1 A0
#set_start_del 1 0
```

Notes:

If *param2* is set to 0, then the start delimiter is turned “off”. In that case, *param3* is optional and is ignored by the PACS. *param2* is used to “enable” or “disable” the delimiter value.

#set_tcp_br_port Command

The #set_tcp_br_port command sets the TCP Bridge server listening port.

Syntax:

```
#set_tcp_br_port param1
```

Parameters:

param1	Port

Example:

```
#set_tcp_br_port 49201
```

Default:

```
TCP Bridge to Serial Port 1: 49200
TCP Bridge to Serial Port 2: 49201
TCP Bridge to Serial Port 3: 49202
```

Notes:

Do not change the TCP Bridge server port values unless instructed by Gefen Technical Support.

#set_udp_br_port Command

The #set_udp_br_port command sets the UDP server listening port.

Syntax:

```
#set_udp_br_port param1 param2
```

Parameters:

param1	Port	[1 - 3]
param2	Port number	[0 - 65535]

Example:

```
#set_udp_br_port 1 50200
```

Default:

```
UDP Bridge to Serial Port 1: 50200
UDP Bridge to Serial Port 2: 50201
UDP Bridge to Serial Port 3: 50202
```

#set_udp_remote_br Command

The #set_udp_remote_br command sets the UDP bridge parameters.

Syntax:

```
#set_udp_remote_br param1 param2 param3
```

Parameters:

param1	Serial port	[1 - 3]
param2	IP address	
param3	Remote port number	[0 - 65535]

Example:

```
#set_udp_remote_br 1 172.155.1.70 51000
```

Notes:

The IP address must be in dot-decimal notation, as shown in the example above.

IR Device Setup

Command	Description
#add_class	Specifies the Class of the device
#add_device	Adds a new device
#add_manufacturer	Specifies the Manufacturer for the device
#add_mod_num	Specifies the Model Number for the device
#delete_device	Deletes a device from the PACS
#delete_ir_cmd	Deletes a device by removing it from the IR list
#learn_ir_cmd	Initializes the learning of a new IR command
#play_ir_cmd	Plays an IR command stored in memory
#ren_cmd_name	Renames the specified IR command name
#ren_dev_name	Renames the specified IR device name
#show_device_tags	Displays the existing tags (Class, Manufacturer and Model Number) for a specified device
#show_devices	Displays all devices in the IR list
#show_ir_cmds	Displays all IR commands for a stored device
#show_ir_data	Displays raw data from memory

#add_class Command (optional)

The #add_class command adds or updates the “Class” tag for the specified device. The “Class” tag is used by GAVA to specify the proper Control Template for the User Interface.

Syntax:

```
#add_class param1 param2
```

Parameters:

param1	Device Name
param2	Class Name

Example:

```
#add_class SonyDVD disc
```

IMPORTANT: Device Names and Command Names are all case-sensitive.

#add_device Command (required)

The #add_device command adds a new device. The ADD_DEVICE command must be excuted before learning a new device. The Device Name must be alphanumeric characters and spaces, and is limited to 20 characters in length. (Note that spaces will be replaced with underscores (_) in the XML files).

Syntax:

```
#add_device param1
```

Parameters:

param1	Device Name

Example:

```
#add_device SonyDVD
```

#add_manufacturer Command (optional)

The #add_manufacturer command adds or updates the “Manufacturer” tag for the specified device. The “Manufacturer” tag is used by GAVA to sort the IR Library, and can be helpful for the user to identify the device.

Syntax:

```
#add_manufacturer param1 param2
```

Parameters:

param1	Device Name
param2	Manufacturer Name

Example:

```
#add_manufacturer SonyDVD Sony
```

#add_mod_num Command (optional)

The #add_mod_num command adds or updates the “Model No.” tag for the specified device. The “Model No.” tag is used by GAVA to identify devices, and along with the “Manufacturer” tags, may be helpful for users to identify their IR library files.

Syntax:

```
#add_mon_num param1 param2
```

Parameters:

param1	Device Name
param2	Model Number

Example:

```
#add_mon_num SonyDVD BDPS580
```

#delete_device Command

The #delete_device command deletes a device from the PACS.

Syntax:

```
#delete_device param1
```

Parameters:

param1	Device Name

Example:

```
#delete_device SonyDVD
```

#delete_ir_cmd Command

The #delete_ir_cmd command deletes the IR command from the specified device.

Syntax:

```
#delete_ir_cmd param1 param2
```

Parameters:

param1	Command Name
param2	Device Name

Example:

```
#delete_ir_cmd play SamsungTV
IR Command play for device SamsungTV was removed from
FLASH!
```

#learn_ir_cmd Command

The #learn_ir_cmd command initializes the learning of a new IR command.

Syntax:

```
#learn_ir_cmd param1 param2
```

Parameters:

param1	Command Name
param2	Device Name

Example:

```
#learn_ir_cmd mute tv


IR RMT Learning mode
Press the desired RMT command mute for device tv
Captured timing array 1
Cap timing array 1 end

Press again the same RMT command
Cap timing array 2

Data compare ok, checking for available space in FLASH

Command mute for device tv already in FLASH, overide it
(y/n) ?
y

Command mute for device tv will overide the one in FLASH
New command saved in FLASH !.

End of learning mode
```

IMPORTANT: Device Names and Command Names are all case-sensitive.

#play_ir_cmd Command

The #play_ir_cmd command plays an IR command stored in memory.

Syntax:

```
#play_ir_cmd param1 param2 param3
```

Parameters:

param1	Command Name	
param2	Device Name	
param3	Emitter Port	[0 - 8]

Notes:

Emitter Port 0 is all Ports.

Multiple Emitter Port Numbers may be entered.

Example:

```
#play_ir_cmd play TV 4 6

Playback IR Command: pwr for Device: TV
End of emitter output signal
```

IMPORTANT: Device Names and Command Names are all case-sensitive.

#ren_cmd_name Command

The #ren_cmd_name command renames the specified IR command name. The IR command name must be alphanumeric characters and is limited to 20 characters in length. Spaces are not permitted when creating command names. Use the underscore character ("_") if a space is required.

Syntax:

```
#ren_cmd_name param1 param2 param3
```

Parameters:

param1	Current command name
param2	New command name
param3	Device name

Example:

```
#ren_cmd_name vol_up volume_up SonyAVR
```

#ren_dev_name Command

The #ren_dev_name command renames the specified IR device name. The IR device name must be alphanumeric characters and is limited to 20 characters in length. Spaces are not permitted when creating command names. Use the underscore character ("_") if a space is required.

Syntax:

```
#ren_dev_name param1 param2
```

Parameters:

param1	Current device name
param2	New device name

Example:

```
#ren_dev_name Sony SonyXBR7
```

#show_device_tags Command

The #show_device_tags command shows the existing tags (Class, Manufacturer and Model Number) for a specified Device. The Device Name is actually used by PACS to send an IR command. The additional tags are not required by PACS, but are used by GAVA, and may be helpful for users to keep their IR files organized.

For example, it may be convenient to call a device, “Bedroom_Blu_Ray” for programming purposes. In this case, the Tags would remind the user that “Bedroom_Blu_Ray” is actually a Sony BDP-S580 Blu-ray disc player.

Syntax:

```
#show_device_tags param1
```

Parameters:

param1	Device name

Example:

```
#show_device_tags SonyDVD

Tags for Device = SonyDVD
 Class = disc
 Manufacturer = Sony
 Model Number = BDPS580
```

#show_devices Command

The #show_devices command displays all devices in the IR list.

Syntax:

```
#show_devices
```

Parameters:

None

Example:

```
#show_devices

Devices listed in system:
  Device #01: SamsungTV
  Device #02: panasonic
  Device #03: SonyDVD
  Device #04: Panasonic_Blu_ray
  Device #05: apple_ipod
  Device #06: dish_network
  Device #07: DirecTV
```

#show_ir_cmds Command

The #show_ir_cmds command displays all IR commands for a stored device.

Syntax:

```
#show_ir_cmds param1
```

Parameters:

param1	Device Name

Example:

```
#show_ir_cmds tv


Display IR commands for device tv:

Command #01, power_toggle
Command #02, channel_up
Command #03, channel_down
Command #04, volume_up
Command #05, volume_down
Command #06, mute
Command #07, 1
Command #08, 2
Command #09, 3
Command #10, 4
```

#show_ir_data Command

The #show_ir_data command displays raw data from the memory.

Syntax:

```
#show_ir_cmd param1 param2
```

Parameters:

param1	Command Name
param2	Device Name

Example:

```
#show_ir_data pwr tv


Command: pwr for Device: tv
Carrier frequency = 40.000 Khz
Carrıer value = 1200
Clock frequency = 48000000Hz
Timer prescaler = 200
Timing Size = 52
Repeat Command = 1
Maın Bıts
Data table:
       630    219    99     221    99     115    99     115
       312    326    99     115    100    115    99     115
       100    115    99     115    99     115    100    115
       99     115    100    115    99     115    99     115
       206    221    100    115    205    20043  631    219
       100    220    99     115    100    115    312    325
       100    115    99     115    100    114    100    115
       99     115    100    115    99     115    100    114
       100    115    99     115    100    115    205    222
       99     115    206    20043  0
```

For remotes with toggle bits there will be additional data:

```
Command: 9 for Device: tv
Carrier frequency = 40.000 Khz
Carrier value = 1200
Clock frequency = 48000000Hz
Timer prescaler = 200
Timing Size = 52
Repeat Command = 1
Toggle Bits


Data table:
       629    219    100    220    100    115    99     115
       99     219    206    113    100    115    99     115
       100    115    99     115    100    115    99     115
       99     115    100    115    99     115    100    115
       99     115    206    221    99     115    206    20043
       631    219    99     220    100    115    99     115
       100    218    206    114    99     115    100    115
       99     115    100    114    100    115    99     115
       100    115    99     115    100    114    100    115
       99     115    206    221    100    115    205    20043
       0
```

General Query

Command	Description
#help	Displays a complete list of commands
#ipconfig	Displays all TCP/IP settings
#show_ver_data	Displays the PACS version information

#help Command

The #help command displays help on the specified command. If *param1* is not included, then the full list of commands is displayed.

Syntax:

```
#help [param1]
```

Parameters:

param1 Command [optional]

Example:

```
#help #show_serial_params

Cmd #show_serial_params: Show Serial Port parameters:
 e.g: #show_serial_params
```

#ipconfig Command

The #ipconfig displays all TCP/IP settings.

Syntax:

```
#ipconfig
```

Parameters:

None

Example:

```
#ipconfig

------------- PACS TCP/IP settings -------------
MAC addr = 00:1C:91:02:20:00
IP addr  = 192.168.1.72
Net Mask = 255.255.255.0
Gateway  = 0.0.0.0
Web Server Port = 80
Telnet Server Port = 23
UDP Server Port = 14
TCP Bridge 0 Port = 49200
TCP Bridge 1 Port = 49201
TCP Bridge 2 Port = 49202
UDP Local Bridge 1 Port = 50200
UDP Remote Bridge 1 IP = 192.168.1.180, Port = 50000
UDP Local Bridge 2 Port = 50201
UDP Remote Bridge 2 IP = 193.168.1.180, Port = 50000
UDP Local Bridge 3 Port = 50202
UDP Remote Bridge 2 IP = 194.168.1.180, Port = 50000
Telnet password on login is set to OFF
Telnet welcome at login is set to OFF
```

#show_ver_data Command

The #show_ver_data command displays the PACS version information.

Syntax:

```
#show_ver_data
```

Parameters:

None

Example:

```
#show_ver_data

Hardware version 0
Firmware version 1.66
Release date     Mar 29 2012
Release time     16:11:03
```

Controlling the PACS via RS-232

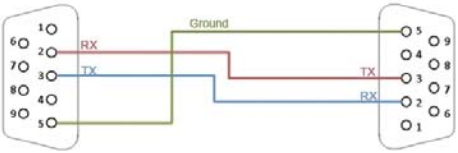
The PACS is generally intended to be controlled via IP, in order to control RS-232, IR, and trigger-operated devices that are connected to it. Under some circumstances, it may be useful to control the Mini PACS via an RS-232 port, such as to use the Mini PACS as an RS-232-to-IR or RS-232-to-trigger converter or if it is more convenient to use an RS-232 connection than an IP connection for configuration. To do this, the RS-232 port must be configured to run in "Terminal" mode. Only RS-232 Port #3 can be configured this way:

1. First access the Mini PACS RS-232 Menu via IP. Set the UART Mode to "Terminal", then click "**Save Settings**"

2. Connect a "null-modem cable" (sold at most computer stores) between the Mini PACS RS-232 port and the serial port on the computer (an RS-232-to-USB adapter can also be used), and run HyperTerminal or another Terminal-emulation program. Default settings are 19200, N, 8, 1.

3. Type "#help" on the terminal emulation program- a list of commands should display to verify that the connection is working.

The Telnet commands starting on page 43 provide the same functionality as the Web Server interface



Default Serial Port Settings

Bits per second 19200

Data bits 8

Parity ..... None

Stop bits 1

Flow Control ..... None

Learning IR Commands via Telnet

The PACS has eight (8) IR Emitter outputs. Each of these IR Emitters can be connected to device. The PACS can learn new IR commands and then send the learned IR command to any or all of the devices at once. The PACS can store commands for up to 20 devices. Each of the stored devices can have up to 64 commands.

In the example below, we will have the PACS learn a play command for a Sony DVD player.

1. Access the PACS using Telnet. See page 9 - 13 for setting up Telnet.

2. Add a new device to the PACS by executing the *#add_device* command (page 66). Provide the name of the device when running the command :

   Example:
   ```
   add_device sonyDVD

   New device sonyDVD was added to system!
   ```

3. Execute the *learn_ir_cmd* command followed by the command name, then the device name:

   Example:
   ```
   learn_ir_cmd play sonyDVD
   ```

4. When prompted, press the button to be learned, on the IR remote control:

   ```
   IR RMT Learning mode

   Press the desired RMT command play for device sonyDVD
   Captured timing array 1
   Cap timing array 1 end
   ```

5. After the button has been pressed, the PACS will process the command. When prompted, validate the command by pressing the same button on the IR remote control:

   ```
   Press again the same RMT command
   Cap timing array 2
   ```

NOTE: If the PACS is unable to validate the IR command, the PACS will prompt you to repeat steps 4 and 5. If the IR command data is valid, then the IR command will be saved to memory. The PACS will ignore IR data that cannot be validated.

6. If the PACS verifies that the data is the same, then it is saved:

```
Data compare ok, checkıng for avaılable space ın FLASH

New command saved in FLASH!
```

7. If the command already exists, the PACS will prompt you:

```
Command mute for sonyDVD already in FLASH, override it
(y/n) ?
```

Enter `y` for *yes* or `n` for *no*:

```
Command mute for sonyDVD already in FLASH, override it
(y/n) ?
y

Command mute for devıce sonyDVD wıll overrıde the one ın
FLASH
New command saved in FLASH !.

End of learnıng mode
```

8. If the PACS is unable to capture the IR command data, the following will be displayed:

```
Fırst and Second capture are not the same
Press agaın the same RMT command
Cap timing array 3

Cap timing array 3 end

None of the matches are ok, abortıng learnıng mode!

End of learning mode
```

SPECIFICATIONS

Output triggers..... (10) Phoenix connectors (+12V DC, 100 mA max.)

RS-232 serial ports..... (3) DB-9, male

IR ports..... (8) 3.5 mm mini-mono jacks

Ethernet Port..... RJ-45

Power Supply..... 12V DC

Power Consumption..... 20 W (max.)* / 2 W (standby)

Operating Temperature..... 0°C - 40° C

Dimensions..... 8.4” W x 4.3” D x 1.75” H

Shipping Weight..... 4 lbs.

*Includes all IR Emitters ON, all triggers drawing 100 mA each.

WARRANTY

Gefen warrants the equipment it manufactures to be free from defects in material and workmanship.

If equipment fails because of such defects and Gefen is notified within two (2) years from the date of shipment, Gefen will, at its option, repair or replace the equipment, provided that the equipment has not been subjected to mechanical, electrical, or other abuse or modifications. Equipment that fails under conditions other than those covered will be repaired at the current price of parts and labor in effect at the time of repair. Such repairs are warranted for ninety (90) days from the day of reshipment to the Buyer.

This warranty is in lieu of all other warranties expressed or implied, including without limitation, any implied warranty or merchantability or fitness for any particular purpose, all of which are expressly disclaimed.

1. Proof of sale may be required in order to claim warranty.

2. Customers outside the US are responsible for shipping charges to and from Gefen.

3. Copper cables are limited to a 30 day warranty and cables must be in their original condition.

The information in this manual has been carefully checked and is believed to be accurate. However, Gefen assumes no responsibility for any inaccuracies that may be contained in this manual. In no event will Gefen be liable for direct, indirect, special, incidental, or consequential damages resulting from any defect or omission in this manual, even if advised of the possibility of such damages. The technical information contained herein regarding the features and specifications is subject to change without notice.

For the latest warranty coverage information, refer to the Warranty and Return Policy under the Support section of the Gefen Web site at www.gefen.com.

PRODUCT REGISTRATION

Please register your product online by visiting the Register Product page under the Support section of the Gefen Web site.

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1.66

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This product uses UL or CE listed power supplies.